NIVERSITY NEWS

A MONTHLY CHRONICLE OF HIGHER EDUCATION AND RESEARCH JANUARY,

DELHI UNIVERSITY-THE ROLE OF THE TEACHER

BY AMRIK SINGH

There are three options before the University of Delhi to deal with the situation as it has arisen. One is to run the University with the help of the police. The second is to close down the University indefinitely, indeed so indefinitely that those who are passive in their response today choose to become active. The third option is to mobilise the teachers of the University in such a way that the vice-chancellor no longer feels isolated and they become, so to speak, the main protagonists of what is called the university. At the moment it is the third option which is being tried. The teachers of the university acting through the Teachers' Association have themselves taken the initiative to mediate between the university authorities and the students. But are they likely to succeed?

It is difficult to be categorical on this point. So far at any rate they have not made much of a headway in their efforts at mediation. This is mainly for the reason that the teachers are divided amongst themselves. Already more than 400 of them have signed a memorandum suggesting that the rustication order be withdrawn. By itself this is not a large enough number and constitutes hardly 10% of the total number of teachers in the university. But that such a substantial number of them have gone on record in a matter which affects the future of the university so profoundly is not a matter to be dismissed lightly.

As against this segment of opinion there is a small body of teachers, *perhaps* smaller than 400, which would not like the rustication order to be withdrawn. But these people are somewhat apologetic about their stand. Those who want the rustication order to be withdrawn are loud and aggressive but those who do not want it to be withdrawn are passive and somewhat defensive in their posture. This is because they do not want to be described as the agents of the vice-chancellor. That is why in their public pronouncements they adopt the position of 'partly this is right, partly that is right'. The other vocal group has no such inhibitions. It is said that they are so vehement in expressing their point of view that on a couple of occasions this vehemence has almost bordered on disruption. Whether this is a fair statement or not is not important.

This is it!

By Sudhir Dar

'Outstanding academic caree rusticated from the best universities."

—*Courtesy Hindustan T*

The important thing is that those who disagree with the vice-chancellor do so publicly and those who agree with him do it almost in an undertone.

What is more, this kind of a *sotto voce* dialogue is likely to continue for the next couple of weeks till such time as the university reopens. Which is a way of saying that the third option, while perfect in theory, may not turn out to be particularly produtcive in practice unless there is a new orientation in the university community, as will be argued presently.

Early next year when the university reopens, once again the issue will be whether the university is to be kept going with the help of the police or it has to be closed down again for another stretch of time. Lest this should strike some people as wildly improbable, it may be added that there are quite a few universities in the country which have already gone through this kind of troubled experience. Examinations which should have been held in a particular year were held in the following year. That this can happen in Delhi also is a possibility which should not be ruled out.

At this stage it is possible for someone to say that there is a fourth option too and why that is not being referred to here. They can say that the vice-chancellor may, or should, resign and that will settle the matter. The rusticated students will feel happy that if they could not go back to the university, they have at least sent the vice-chancellor out. While it is not possible to rule out such a possibility, it would be less than *honest not to speculate on the consequences* of such a development. The most obvious thing to say about such an eventuality is that while this would disperse the tension, it would not solve the problem one bit. If anything, it would complicate it further.

Whoever succeeds the present Vice-Chancellor would have to begin his term of office by taking an attitude towards the problem of rustication. If he adheres to the stand taken by his predecessor he would be confronted with a situation rightaway. If he withdraws the rustication order, he would have made sure that he would not last even as long as the present Vice-Chancellor. The fourth option therefore is as good as not there. In fact those who regard it as a serious possibility are swayed by their subjective feelings and not by the imperatives of the situation.

This therefore brings us back to the starting point. If the university cannot be closed indefinitely and the use of the police is abhorrent to most people, how is the situation to be resolved? My answer is that there is no other option except that the teachers of the university play the role that their profession demands of them. It is a safe generalisation to make in our situation that there seldom is a student strike except when it is backed by a section of teachers. This is not to suggest that the current trouble in Delhi University is teacher-inspired. But to say that the trouble has not yet been overcome because a section of the teachers refuses to condemn the violence and vandalism committed on the campus is not only correct but requires to be said. In this case, on the contrary, a substantial number of them have gone to the extent of saying that the *rustication order* requires to be withdrawn.

This means that the teachers of the university are not agreed upon the do's and don'ts of their profession. Before he deals with the students, the problem of the vice-chancellor therefore is how to make sure that his colleagues hold the same views that he does. The colleagues can turn round and say that they had no hand in his appointment and that they look upon him as a boss and not as a colleague. While they would be right to a very great extent, they would not have said everything about the problem. However autocratic a vice-chancellor might be—and Sarup Singh does not belong to that breed; and in any case the breed is dying out—every vice-chancellor has to function in close collaboration with the teachers. That the teachers are unable to make their presence felt in terms of the policies and practices of a particular university is as much a reflection upon the traditionalism of the Indian university as upon the passivity and apathy of the teachers.

Indeed it is a situation where it would be dishonest on the part of anyone to strike a holier-than-thou attitude. Everyone, and that includes not only the vice-chancellor and the teachers but the rest of us as well, is responsible for the sickness that is destroying the universities. But surely none can be better informed, and indeed more involved, than the teachers in what is happening within the universities. The students too are actors in the drama but to expect that they would behave as mature and responsible persons is to expect too much. Whereas to expect from teachers that they would understand the issue and act in a responsible and responsive way is to expect them to pay the role that is demanded of them. If they cannot play this rôle, surely something is wrong somewhere. As a matter of fact, one inescapable symptom of the growing university crisis in the country is the absence of leadership on the part of teachers. In the case of Delhi University it is not only the failure of leadership which is a problem, the more serious part of the problem is that there is a downright division in the ranks of the teachers and quite a number of them have publicly disagreed with the Vice-Chancellor in his refusal to condone certain criminal acts.

Whether the present Vice-Chancellor survives in office or not will depend, in the utlimate analysis, on his ability to unify the teachers in respect of what he stands for. If a small minority of teachers remain vocal in disagreement with him and an equally small minority agree with him but do not say it loud and clear and the vast majority look on with an attitude of unrelieved passivity, his exit cannot be long delayed. If this is what the teachers of the university want, their present posture is finely calculated to achieve this result. But if even a small segment of them do not want him to go because this would hurt the university ultimately, their continued passivity would have to be abandoned in favour of something more positive. This is the stark choice with which the University of Delhi is faced today.

To stop here and not to refer to the outstanding contribution of Delhi Administration in having created this situation would be to take a somewhat partial view of things. In the din and confusion created during the last one month almost everyone seems to have forgotten that the situation was initially mishandled by the Delhi Administration. What it did was true to pattern. It failed to understand the difficulties of the persons involved and the endless patience with which those concerned had waited for the removal of their difficulties. It was only when things became intolerable that they resorted to what is called direct action. One thing leads to another till such time as there is confrontation and even violence. This is a pattern of behaviour which gets repeated with sickening regularity, in the universities as well as in other sectors of public activity. It requires no political scientist to tell us that violence is a sign of desperation. And desperation is born because of corruption as well as bad administration. While corruption is not the issue here, the Delhi Administration cannot defend itself against the charge of downright bad administration as far as this particular issue was concerned. To say this is as important as that the crisis in Delhi University is a result not of student gangsterism so much as of the abdication of their professional role by the teachers of this university.

One last word. The current events in Delhi University are the culmination of a process that has been at work for quite some years now. The process can be described as one of widespread and profound alienation between the students and the teachers on the one hand and the teachers and the authorities on the other hand. If some teachers dispute the fact that there is any kind of alienation between them and the students, it only goes to show that they are not even aware of the problem. The problem is real and cannot be wished out of existence, only because some people choose to deny it vehemently. In fact this problem is more difficult to solve than the related problem of removing the state of alienation between the teachers and the authorities. The concept of democratisation which the university has been trying to put into practice for some time is calculated to take care of the second problem Its success so far has been partial, even disappointing. But to blame the university for it entirely would be to misjudge the situation grievously. That is for the reason that democratisation without professional involvement cannot succeed and is indeed a contradiction in terms. The situation in Delhi University examplifies what happens when the two do not go together.

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Horoscope by computer is the latest fad introduced by a German firm making computers, cash registers and various office book-keeping machinery. All of what the future holds, if one believes in astrology, can be made available in a bare 120 seconds with the use of an NCR Century-100 computer now seeing service at the Munich Telectron Institute operated by M. Paul. Programming of the computer was accomplished over a period of two years with the combined efforts of astrologists, psychologists, mathematicians and EDP specialists.

SIXTIETH INDIAN SCIENCE CONGRESS

This year the Indian Science Congress enters its diamond jubilee—it is going to be holding its sixtieth session in the harmonious atmosphere of Le Carbusiers's Chandigarh.

The Science Congress has attracted much attention during these two and a half decades after Independence primarily because of the dynamic political leadership of Jawaharlal Nehru, who took a keen interest in its activities—the interest which stemmed from his abiding faith in the efficacy of Science and in order to inject a rational spirit of enquiry ("scientific temper"—in his words) in a tradition-ridden country like India.

The background of the Science Congress is quite interesting. At its very first session in 1914, when the total membership was hardly five and a century, and when only thirty-five papers were presented, the membership in its Diamond Jubilee year has crossed the high water mark of 6000; and the papers which are likely to be presented this month at Chandigarh would easily number some 2000!

The endeavour of the Indian Science Congress, unlike some other organizations in the country, is to involve the large masses of the Indian people in the exciting pursuit of science for collective good and enlargement of this goodness so that it would reflect in their living conditions. The favoured approach is for Science to be more useful an ally in its functional capacity to attack India's extreme poverty—this role was defined once by Jawaharlal Nehru at one of the sessions of the Congress thus: "It is science alone that can solve the problem of hunger and poverty, and insanitation and illiteracy, of superstition and deadening custom and tradition, of vast resources running to waste, of a rich country inhabited by starving people, who indeed can afford to ignore science today?" Science is today so intimately linked with the very survival of the human-being, that any country would ignore it at enormous peril. In the pre-Independent India, universities lacked the resources to support strong schools of sciences. All that was achieved was, therefore, the setting up of the Geological, Botanical and Zoological Surveys, and some Govt. Departments which provided—in the words of Dr. S. Bhagvantam, the General President of the Congress this year—"A general mapped picture of this large country and its resources". Between then and now, India has at least reached the first stage of recognising as inevitable instrument of progress and change: this realisation can be seen at work in a number of agricultural universities, which are striving to develop, through experimentation and commonsense, some new ways in old agriculture to make the land give more to the hungry.

This being the base of India's very survival, all other sciences through the net-work of researchers are doing every bit in their power to make India once again competent enough to feed its vast population and throw out its traditional poverty.

To that extent, the Chandigarh Session and its participants are the brave men, who are continuing their research against all odds and obstructionist attitudes to find a way out of centuries-old labyrinthine darkness.

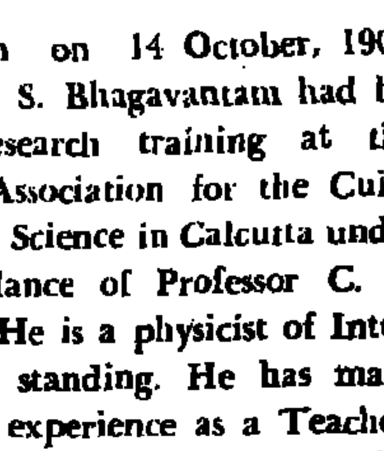
W. D. MIRANSHAH

OPENS AT CHANDIGARH

GLIMPSES OF THEIR LIFE AND CAREER

Born on 14 October, 1909, Professor S. Bhagavantam had his early research training at the Indian Association for the Cultivation of Science in Calcutta under the guidance of Professor C. V. Raman. He is a physicist of International standing. He has many years of experience as a Teacher, Research Socientist and Administrator. His publications are extensively used by the community of Scientists.

PROF. S. BHAGVANTAM.



He has published a large number of Scientific papers and three books with the titles:

1. Scattering of Light and Raman Effect
2. Theory of Groups and Its application to Physical Problems
3. Crystal Symmetry and Physical Properties

He has been the Chairman for about seven years of Bharat Electronics Limited, a premier electronic industry meeting the defence need of India in that field and also Chairman of Hindustan Aeronautics Limited, for a short period; in addition to being a Director of both these companies for a long time. He was a member and later the Chairman of the Committee on Organisation of Scientific Research in India, a Committee set up by the Prime Minister. He worked as a Member of the team of International specialist consultants that prepared the report on Chemical and Biological Warfare for the U.N. Secretary-General.

PROF. R. P. BAMBAH

R. P. Bambah, Sc.D. (Cantab), F.N.A., Professor and Head, Centre for Advanced Study in Mathematics, Panjab University, Chandigarh (born: 30th September, 1925), took his M.A. from Panjab University as a student of Government College, Lahore, in 1945, securing full marks. After a short spell as a research scholar at Lahore and lecturer at Delhi University, he proceeded to Cambridge as an 1851 scholar and obtained his Ph.D. in 1950. He was elected to a Fellowship of the St. John's College, Cambridge, in 1952. He has been a member of the Institute for Advanced Study, Princeton (1952-54) and Professor|Visiting Professor at Notredame (1957-58) and Ohio State (1964-68, 69, 70, 71, 72) Universities in the U.S.A. He is a Fellow of the Indian National Science Academy and has been Editor and President of the Indian Mathematical Society. He is on the Editorial Boards of

Journal of Number Theory and Indian Journal of Pure and Applied Mathematics.

His contributions, especially in the theories of lattice and non-lattice coverings, have been responsible for stimulating a lot of work by other mathematicians in many countries.

DR. G. R. TOSHNIWAL

Deeply interested in applied Physics and Radio Physics and particularly in Instrumentation, he was elected first as a full Member of the Institute of Radio Engineers (New York) in 1938. In 1945 he was elected as a Senior Member of the Institute of Electrical and Electronic Engineers (New York), and now a Life Member (1972).

In 1945 He was also elected as a Fellow of the National Institute of Sciences, now known as Indian National Science Academy, for his original work in the field of Spectroscopy and Radio Physics.

Dr. Toshniwal is also active member in some Committees of the Indian Standards Institution. He is also a member of the Executive Council of CEERI, Pilani and earlier he served on the Executive Council of CSIO, Chandigarh.

Dr. P. K. IYENGAR

Starting as a research worker in nuclear physics in the Tata Institute of Fundamental Research (TIFR), way back in 1952, forty-one year old Dr. P.K. Iyengar has achieved excellence in varied fields such as solid state physics and reactor physics and has risen to the pisition of Director of the

Physics Group at the Bhabha Atomic Research Centre (BARC) Trombay. He is among the leading scientists of the world in the field of neutron scattering. His preoccupation these days are in the development of fast reactor technology and the latest addition to his list of achievements is the experimental fast reactor, PURNIMA, which is a zero energy fast reactor designed and built by Dr. Iyengar and a group of young workers whom he gathered together from various disciplines at Trombay.

Dr. Iyengar is a member of planning & Coordination Committee for the Reactor Research Centre at Kalpakkam and is now looking at various aspects of the development of that Centre including the design of pulsed fast reactor. He is also a member of the Board of the Atomic Power Authority and of Rajasthan and Madras Atomic Power Projects. He is a member of the Board of Studies in Physics of the Bombay and Bangalore Universities. He is a fellow of the Indian Academy of Sciences.

M. S. BALASUNDARAM

Born at Mylapore, Madras, on 23rd November, 1914, he had a brilliant academic career at the Presidency College, Madras. He stood first both in the B.Sc. and B.Sc. (Hons.) examinations in 1935 and 1937 respectively and annexed the 'Chromarty Prize' twice and the Rao Bahadur Narayana Rao Prize for proficiency in geology in 1935.

He was deputed to Australia in

1946 for higher training in geology at the Melbourne University. He participated in the seminar on "Geologic Research and Water Exploration" held in West Berlin in July 1964, and again in the international symposium on "Recent Crustal Movements and Associated

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Seismicity" held in February 1970 in New Zealand. As Vice-Pesident of the CGMW for Asia, he participated in the Plenary Session of the Commission for the Geological Map of the World in Paris in March 1970.

For over thirty years of service, he has carried out systematic mapping, mineral exploration, investigation of earthquakes, ground water survey and engineering geology investigations all over the country.

He has published over sixty papers and has more than hundred unpublished reports to his credit.

DR. P. K. BHOWMICK

Dr. Prabodh Kumar Bhowmick (b. 1929) is at present Reader in Anthropology in Calcutta University. He is also associated with the Department of Socioligy, Kalyani University.

He obtained the D. Phil. Degree in Anthropology from the University of Calcutta in 1959. In 1967 the University of Calcutta offered him the highest degree, i.e. D.Sc. in Anthropology. Dr. Bhowmick has been the only recipient of the D.Sc. degree in Social Anthropology from this University so far. He made a mark as a teacher while he taught in the Bangabasi College (1952-1962) where he spent his days in undergraduate classes.

Dr. Prabodh Kumar Bhowmick, a scholar engaged in Action Research and an advocate of empiricism, recognizes no contradiction between theory and empiricism. He conducted painstaking research on life of the Lodhas, stigmatized earlier as a criminal tribe. The correct analysis that this pioneer in the fixed made of the situation was responsible for a change in the field made of the situation and people at large towards this community and similar groups of people. Dr. Bhowmick has devoted his life to the uplift of the Lodhas and similar groups of people. For this purpose he has organized (i) the Samaj Sevak Sangha at Bidisha, Narayangarh, Midnapore, (ii) the Institute of Social Research and Applied Anthropology, with its headquarters in Calcutta University and (iii) the Sanskrit Parishad —all voluntary organisations.

More than one hundred scientific papers by Dr. Bhowmick have been published in various journals and periodicals.

DR. N. T. MATHEW

N.T. Mathew was born on 23 Nov. 1915 in a village set amidst the green hills and valleys of Kerala. He had a bright academic career. M.A. in Mathematics from Kerala where he topped the list and was awarded two gold medals; M.Sc by thesis in Statistics from Madras; Ph.D. in Anthropometry from the Indian Statistical Institute. At Madras he worked under the eminent mathematician R. Vaidyanathaswamy, the economist P.J. Thomas and the statistician N.S.R. Sastry. One curious piece of work which Mathew did while at Madras in 1937 was a statistical study of Palmistry based on measurements on large numbers of palm prints. His publication in Sankhya was the earliest scientific contribution to this subject in which most human beings appear to be interested.

PROF. B. KRISHNAN

Professor B. Krishnan, Senior Professor of Psychology in the University of Mysore, was born in October 1917. He was educated in the University of Mysore and the University of Minnesota, United States of America.

He was the President of Indian Academy of Applied Psychology for two years and now serves as one of its Committee Members.

His interests are in the field of Personality, testing, vocational guidance and clinical psychology. He has a number of publications to his credit.

DR. ASHOK GHOSH

Dr. Ashok Ghosh was born on January 20, 1927 at Jamalpur (now in Bangla Desh). He graduated from the University with a first class Honours. He obtained M.Sc. degree in Anatomy from the McGill University, Canada under the research guidance of Professor C.P. Leblond, and Ph.D. degree from the University of Calcutta (1955).

Dr. Ghosh's main interests in research are in the fields of avian endocrinology and histochemistry. He has made significant contributions in our understanding of the histophysiology of the avian adrenals.

Doctor Ghosh and his associates have published more than hundred original research articles in reputed Indian and foreign journals.

He is an elected foreign member of the European Society for Comparative Endocrinology.

Dr. Ghosh was a recipient of 'Rockefeller Foundation Equipment grant' (1962) and 'Population Council (U.S.A.) Book and Equipment award' (1966).

Dr. Surath Kumar Mukherjee has been a brilliant scholar throughout his academic career.

In 1957, he was awarded a Colombo Plan Fellowship, and carried out advanced research in diabetes and clinical endocrinology under Professor C. H. Best. F. R. S. of the University of Toronto.

In the field of lipid metabolism, he made some important contributions, like finding out a direct link between microsomal cholesterol enrichment and atheromatous index.

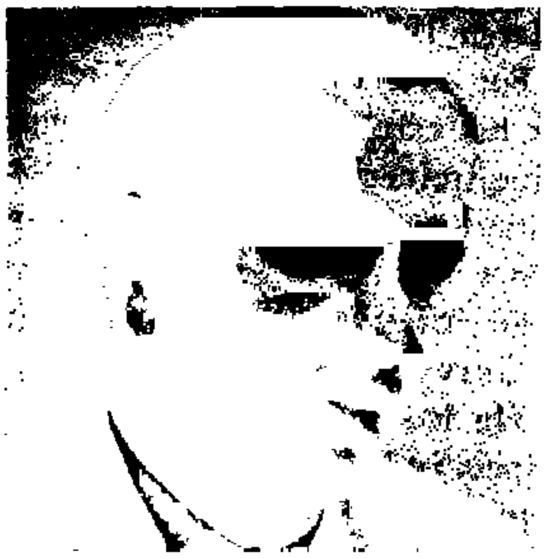
He has initiated a group of scientists in the field of chronic toxicity study in the Experimental Medicine Division of the Central Drug Research Institute.

DR. S. K. MUKHERJEE

Dr. S.K. Mukherjee has 60 publications so far in India and abroad.

DR. M. THIRUMALACHAR

Born on 22nd September 1914 in Bangalore, son of late Prof. M. J. N. Narasimhan, former Director of Agriculture, Mysore State, and emeritus scientist, studied at the University of Mysore, Bangalore, obtained the degrees of B.Sc. (Hons.), M.Sc. in Botany, and D.Sc. in Mycology. In 1946 went to the University of Wisconsin, and specialised in Plant Pathology under Dr. James G. Dickson, and was awarded the degree of Doctor of Philosophy. In 1939 joined as lecturer in Botany at the Central College, Bangalore, and after return from U.S.A. in 1947, was appointed as professor of Mycology and Plant Pathology at the Banaras Hindu University. In 1951, joined Central Potato Research Institute, Patna, Bihar under the Government of India, Ministry of Agriculture, and in 1953 transferred as Chief Mycologist at the newly started Hindustan Antibiotics, Pimpri, under the Ministry of Commerce and Industry. From 1958 onwards holding the position of Superintendent Research, Hindustan Antibiotics.



Research activities include specialisation in the filelds of general mycology, medical and industrial mycology, plant pathology and parasitology.

PROF. P. N. WAHI

Prof. P. N. Wahi is a graduate of the King George's Medical College, Lucknow. He had his postgraduate education both at Lucknow and in London. He is a Fellow of the Royal College of Physicians, London, a Founder Fellow of the Royal College of Pathologists, London, Founder Fellow of the Indian Academy of Medical

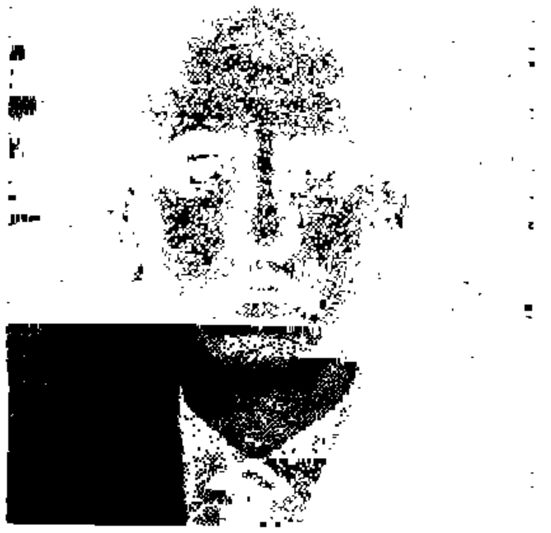
Sciences. Founder Fellow of the International Academy of Cytology and of the National Academy. Befor joining as Director-General, Indian Council of Medical Research, Prof. Wahi was Vice-Chancellor of the Agra University.

His main interest is in medical education and Pathology, especially cancer research. He is the President of the Indian Association for the Advancement of Medical Education and a member of the W.H.O. Expert Panel on Medical Education. He was also invited by the W.H.O. to be the Chairman of the Technical Discussions Session of the World Health Assembly in Geneva in 1970. His work on cancer has been internationally recognized. He was awarded Padma Bhushan by the President of India in 1970, and Lady Brahmachari Readership in Medicine in Calcutta in 1964.

Prof. Wahi is the author of over 300 original papers in the field of medical education and research published in national and international journals.

PROF. R. C. KAPOOR

Prof. R. C. Kapoor, born on 22nd December 1927 at Bareilly, received his school education at G.N.K. High School, Kanpur and studied at the Christ Church College, Kanpur for intermediate education. Later he joined the University of Allahabad for his higher education. He had a uniformly brilliant career having secured first class in all public examinations. In 1946 he joined research under the guidance of Prof. N.R. Dhar and earned the D. Phil. degree of the University of Allahabad in 1948. He obtained the DSc. degree of the University of Allabhad in 1957.



Professor Kapoor was initiated into the field of polarography in the laboratory of Professor I. M. Kolthoff at the University of Minnesota, U.S.A. from 1953 to 1956 he did notable work there on Sulphydryl — disulphide exchange reaction amongst amino acids, peptides and proteins.

Professor Kapoor's research interests include the fields of polarography and voltammetry with DME and solid electrodes and their applications in the study of metal complexes, thiol—disulphide systems and reversible and irreversible electrode systems.

Professor Kapoor has been associated with academic societies such as The Polarographic Society. U.K., American Chemical Society. National Academy of Sciences (INDIA), Indian Chemical Society, Society for the advancement of Electrochemical Science and Technology Karaikudi and Vijnana Parishad Allahabad. He is on the Advisory Board of the Journal "Cellulose Chemistry and Technology", Romania.

PROF. A. K. SHARMA

Professor Arun Kumar Sharma (born in November 1924 at Calcutta) is the University professor and the Head of the Department of Botany at the University of Calcutta. He has built up an active school of research since 1948 on Cytogenetics and Cytochemistry with nearly 40 active research workers working on different problems of plant and human genetics. The principal contributions made by him and his colleagues include the development of a number of new techniques for the study of detailed chrosome structure from any organ of the plant.

His voluminous work, entitled "Chromosome Techniques —Theory and practice" (written jointly with Dr. Mrs. Archana Sharma), published by Butterworths (London), is now regarded as a standard text-cum-reference book in all research aboratories to his credit, research laboratories of the world. Professor Sharma has nearly 300 research publications to his credit, published in different foreign and Indian journals.

He is a Fellow of different scientific societies including the Indian National Science Academy.

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THIRTY-ONE NATIONS PARTICIPATE IN TECHNOLOGY TRANSFER AT NEW DELHI

Delegates from 31 nations, meeting in New Delhi on 11 December, heard urgent appeal for the development of new forms of technology to suit the situation of the developing countries especially as regards small and medium industries.

The statement was made by I. H. Abdel Rehman, Executive Director, United Nations Industrial Development Organization (UNIDO) when he spoke at the opening of the three-day International Seminar on Technology Transfer at New Delhi's Vigyan Bhawan.

The seminar was inaugurated by the President of India V. V. Giri.

The theme of the Seminar was Transfer of Technology both from the advanced to the developing countries, in between the developing countries themselves and from the centres of research and technology to industry within the same country.

Organized by the Indian Council of Scientific and Industrial Research, in cooperation with UNIDO, the Seminar was held in conjunction with the Third Asian International Trade Fair 1972. Delegates from the following countries participated in the Seminar: Afghanistan, Algeria, Australia, Austria, Belgium, Bulgaria, Brazil, Canada, Chile, Federal Republic of Germany, Fiji, German Democratic Republic, Guinea, Indonesia, Japan, Kenya, Korea, Libya, Malaysia, Nepal, Oman, Peru, Philippines, Spain, Sudan, Sri Lanka, Tanzania, Democratic Republic of Viet-Nam, Yugoslavia, UAR and Zambia.

Participants in the Seminar included UNIDO experts and consultants and observers from UNDP, UNCTAD, UNESCO, ILO and the World Bank.

Composite Picture

In his address to the inaugural session, Mr. Abdel Rehman stated: "The diversity, of cases where technology has to be created and transferred leads to a very composite picture specially in a large country like India. In such a picture one would find a variety of situations ranging from cases where technology should be imported to cases where it should be created or adapted considerably domestically. The question is not, however, to choose between the two alternatives as a matter of principle but as a matter of convenience, case by case, according to the circumstances. However, the aim should be always to strengthen the national capacity of creating and adapting technology, as well as the export of technology to other cases."

"The developing countries", the Executive Director stated, "usually give more attention to import substitution policies and later turn to increasing their exports of manufactured goods without, however, losing sight of the need to develop small and medium industries so as to ensure supply to the local markets of greater employment in the rural sector".

Noting that "the prevalent industrial technology has been predominently established in the advanced countries within circumstances which do not generally apply to the developing countries", Mr. Abdel Rahman observed, "therefore, it is quite essential that new forms of technology be developed to suit the situation of the developing countries specially as regards small and medium industries."

Expanded Cooperation

UNIDO has been happy to find readiness on the side of the Government of India to continue and expand cooperation with UNIDO in industrial technology, added the Executive Secretary. He concluded: "This cooperation will hopefully in the coming years lead to greater understanding of the industrialization and technological developments in India and greater contribution from UNIDO as well as other multilateral and bilateral agencies in making the Indian experience available to other developing countries."

Technological Gap

In his inaugural address, President of India V. V. Giri pointed out that the technologial gap between the developed and the developing nations is increasing at "an alarming rate' and therefore, appealed for efforts to speed up the pocess of bridging the disparity.

President Giri continued: "The developing countries who have achieved cognisable expertise and sophistication in specific technologies should exchange their experience and know-how with others for mutual advantages. The possible area of cooperation are exchange of data, training of personnel, consultation and exchange of managerial skills to help superwise the transfer process."

"It has been emphasised time and again by my Government", concluded President Giri, "that India is attempting to bridge, in a matter of decades, the gap created by a century and more of stagnation. The implementation of this calls for a chain reaction with a big leap forward in all activities related to technology transfer, namely, basic invention, innovation, engineering and designing, manufacturing marketing and after-sales service, with efficient feedbacks."

Role of UNIDO

In an address to the opening session, India's Minister of Industrial Development, Science and Technology C. Subramaniam stated that UNIDO has been playing an important role in assisting in the transfer of technology for the benefit of the developing nations as part of its promotional role in industrialization.

"It is our hope" added Mr. Subramaniam "that this kind of an international sharing of experience on the wide range of questions relating to technology transfers will continue to take place at periodical intervals. Apart from actively associating ourselves with such efforts we are also exploring with UNIDO arrangements for continuing studies on these questions which can be of benefit to developing countries and to UNIDO."

SCIENTISTS REPORT OF INSECT CONTROL

Insect pests which cause irrepairable damage to public health, livestock, food crops, fibre crops and forests are several steps closer to eradication and suppression due to recent advances in the "sterile male technique."

By this technique, the offending insect is mass-reared and irradiated in laboratory conditions, before being released into its natural habitant. If a sufficient number of sterile insects are released, they will in time eradicate, and certainly suppress the insect population.

A world-wide meeting of 29 scientists from 17 countries, including Africa and South America met at IAEA headquarters in Vienna to discuss progress in the scheme. The meeting was sponsored by the IAEA and the Food and Agricultural Organization (FAO).

WE WISH OUR

READERS

A HAPPY

NEW YEAR!

TOWARDS MORE EFFECTIVE TEACHING AND LEARNING THE McGILL CENTRE

McGill University established a Centre for Learning and Development in 1969 'to improve the learning environment and methods of teaching and learning at the university and at other levels of education'. It defines its major aims as being to:

- increase awareness among professors and students of the critical need to evaluate current teaching and learning methods as well as to offer constructive alternatives on both a conceptual and a practical level
- assist actively instructors and students in designing and evaluating new instructional methods and programmes
- identify existing university structures and programmes which are conducive to educational progress and those which block it, as well as to propose and help develop alternatives which will enhance educational reform
- conduct research on relevant issues.

DISSEMINATION AND CONSULTATION

The Centre's principal vehicle for disseminating information is its newsletter, 'Learning and Development', which usually includes a feature article on university instruction and items describing innovations at McGill and elsewhere. It is distributed to all full-time members of the McGill faculty and to student leaders. The Centre also issues monographs on individual areas of interest, reports and bibliographies. Consultations on a wide range of instructional problems are given to the staff and students of McGill or other institutions. The Centre has also held a series of meetings with staff groups from single departments or faculties to discover how instructional problems are perceived, to get feedback on the effectiveness of its projects and to find out how it can offer better services tailored to real needs. There were 665 consultations in 1970-71.

EVALUATION & RESEARCH

The Centre helps to develop methods of course evaluation by students. Attention has been focussed hitherto on developing a questionnaire but the emphasis has moved to studying the total system in which course evaluation takes place, and studying how instructors may use findings to improve courses and student learning. In addition a variety of research projects on topics in education and psychology are in progress.

A series of workshops for faculty and teaching assistants on topics such as 'designing effective instruction' and 'computer-assisted instruction' are held.

The five professional staff members of the Centre have cross appointments in psychology and educational psychology in addition to their work in the Centre.

—From ABCD

Research in Landscaping at University of Newcastle Upon Tyne

LONDON, December 14 — Research into landscaping started recently at a British university may benefit future environmental planning.

A team of scientists under the leadership of Prof. Brian Hackett, Professor of Landscape Architecture in the Department of Town and Country Planning, University of Newcastle upon Tyne, has begun research study into the effects of spaces formed by landscaping of mounds and hills on the micro-climate (the climate prevailing in a particular area) and noise levels in areas around Newcastle.

The results of the study are expected to yield important data which, through a new approach to landscape planning, will lead to environmental improvement by providing the most suitable surroundings for any particular development.

The team will try to discover the extent to which tree planting can increase or decrease the effect of spaces in the landscape on the climate. It is also anxious to establish the degree to which mounds and hills can reduce noise. The team will make use of the sophisticated scientific instruments in the University's landscape laboratory.

UGC FOR LINKING EDUCATION WITH PRODUCTION

The U. G. C. Chairman, Dr. D. S. Kothari, told an International Economic Journalists' Seminar in New Delhi that a link between education and production was vital to development-oriented education in the country; he announced that the U.G.C. was studying the idea of associating higher educational institutions with production units as part of the academic programme.

He suggested that a new agency which might consist of educators and industrialists, be set up for evolving a scheme of linking education and production; educators alone could not do it, nor the industrialists. He was for colleges to participate in production processes: the U.G.C., he said, was thinking of starting an experimental project, under which production units would be attached to selected colleges.

He fortified his argument by quoting the link between educational expenditure and GNP: he said that this expenditure moved with the GNP—in the United States it was $ 3000; in India only Rs. 500. Quoting the Fifth Plan approach paper, he said that it was envisaged to provide for an outlay of Rupees 400 crores for higher education. Enrolment by the end of the Fifth Plan was likely to be over 6 million: "If India is to spend half or one third of what the U.K. is spending on book—a basic ingredient of quality education—India will have to spend another Rs. 400 crores."

New Delhi, December 20, 1972: The Government of India and Rumania today took an important step forward towards the implementation of the agreement on scientific and technological co-operation between them signed in October, 1969. The two governments have agreed to cooperate on a number of projects during 1973-74.

The agreement on the specific projects was signed today in a simple ceremony at CSIR, Rafi Marg, New Delhi by Shri K.G. Krishnamurthi, Secretary, CSIR and the leader of the Rumania scientific delegation Mr. Dumitrescu Stelian, Counsellor, National Council for Science and Technology, Rumania. The areas in which they would cooperate include petroleum technology, chemical technology, metallurgy, machine building, refractories, agriculture, forestery, leather industry, health engineering etc. The two governments will also exchange scientific literature of use and interest to each other. There will also be exchange of scientists between the two countries in the specific fields in which they will cooperate with each other.

'Lord Robbins' Committee on Higher Education considered "What purposes, what general social ends should be served by higher education", and proposed the following specification:

"(a) *instruction in skills suitable to play a part in the general division of labour;*

(b) *ensuring that what is taught is taught in such a way as to promote the general powers of the mind, the aim being to produce not mere specialists but, rather, cultivated men and women;*

(c) *the advancement of learning;*

(d) *the transmission of a common culture and common standard of citizenship".*

—From ABCD

Aurobindo's Universality—A Seminar at New Delhi

A recent New Delhi seminar on the occasion of the birth centenary of Sri Aurobindo has suggested that a World Univesrity "wedded to the ideals of human unity and world peace be created in every country."

The seminar was organized by the Union Ministry of Education and Social Welfare. A number of Indian scholars participated; and there were some 20 foreigners, too.

The suggestion for setting up this university came from Mr. Haridas Chaudhuri, who wanted that structure and functions of the United Nations be re-organized "in the best interests of abiding peace."

Mr. K.R. Srinivasa Iyenger, another scholar, quoting Sri Aurobindo's message of universality "the spiritual message of India is that the universal itself is one and that our souls not only brothers, not only of one substance and nature but live and move towards an essential oneness"—he regretted that there was "no drive towards harmony, no firm insurance for peace."

To Mr. Amury De Riencourt, the fundamental problem of human unity appeared insoluble "under present conditions, given the nature of contemporary man". He felt that because there was a general dissatisfaction with present day conditions, "which provide an emotional as well as intellectual opening for the inclusion of non-western elements and concepts and life-styles as a first step towards a creative synthesis. The breakdown of morals in the economically developed countries, the widening generation gap, the *rise of terrorism and anarchy*, the widespread use of drugs, the disintegration of the family and the traditional kinship ties due to fantastic spread of urbanisation point to a chance of phase in history itself and usher in an entirely new geological age — hopefully, the age of superman whose chief characteristic will be to embody in creative fashion the synthesis to which we referred to earlier."

Another delegate, Dr. Prema Nandkumar felt that Sri Aurobindo's evolutionary theory, which he derived from his Yogic vision and experiences, would certainly sustain faith in man's future.

From the B.H.U. came Mr. Bhupen Qanungo: he was of the view that no other Indian had developed Ideal of Human Unity as Sir Aurobindo had. He felt that the vision and wealth of generalisations by Sri Aurobindo on modern political institutions provided us with "a thesis regarding the collective evolution of human race."

The Osmania University representative, Prof. V. Madhusudhan Reddy, felt that real unity of mankind was impossible; it was governed completely by the inner law of life; and that the unity constructed by political and administrative means was only precarious and mechanical.

On the other hand, Mr. Robert Linseen held this view: "The highest forms of spiritual wisdom are superior to all human sciences." He found it interesting, however, to examine "how wisdom and science re-join each other in a perfect complimentarity. Recent developments in modern sciences have confirmed several aspects of Sri Aurobindo's teaching". The modern age looked like a new renaissance to Mr. Murillo Nunes de Azevedo: "Old, traditional values are being transformed in a global civilization, where it is impossible to distinguish the so-called West or East. Men formerly closed in the limits of their small horizons are now growing conscious of world unity.

NATIONAL CHEMICAL LABORATORY DEVELOPS RADIOSONDE THERMISTORS!

The National Chemical Laboratory (NCL), Poona has developed radiosonde thermistors for measuring temperatures of upper atmosphere. These devices are extremely important in meteorological forecastings of vital importance to both civil and defence aviation. The present demand *for radiosonde thermistors — met* through imports — is around 20,000 pieces per year and is expected to increase further with the increasing use of this technique.

The NCL process has been standardized on 100 pieces per batch and is available for commercial exploitation on non-exclusive basis. The total capital requirement for a prospective entrepreneur would be in the region of Rs. 2.24 lakhs.

The thermistor samples prepared *by the laboratory were tested by* the Meteorological Observatory, Poona and have been found quite acceptable and a shade superior to the imported ones.

DR. MAHDI HASSAN NOW FELLOW OF THE COLLEGE OF SURGEONS

Dr. Mahdi Hasan of Aligarh Muslim University has been awarded Fellowship of the International *College of Surgeons* in recognition of his significant contribution to the advancement of medical sciences.

Dr. Hasan has done intensive research on aging of brain and has to his credit original work on age changes in the brain by making use of electronic microscopic technique. He has further studied the effect of some drugs on age pigment. He is probably the only Indian Anatomist who has been honoured by that august world body.

His recent book entitled "Understanding the Neuronal Lipofusin" is under print in Germany.

Dr. Hasan, who is a Reader in the Department of Anatomy in Jawaharlal Nehru Medical College, recently returned from Germany after teaching in Gottingen University as visiting Professor for one year.

Last year, Dr. Hasan was awarded fellowship of the Royal Microscopical Society.

The International College of Surgeons, which is a World Federation of General Surgeons and surgical specialists, was founded in Geneva, Switzerland, and incorporated in Washington, U.S.A.

MANCHESTER UNIVERSITY PROFESSOR TO VISIT INDIA

LONDON, December 15 – Prof. F.R. Jevons, Head of the *Department of Liberal Studies in* Science at Manchester University, is to spend four weeks in India, based on the Indian Institute of Technology in Bombay, to explore the possibility of setting up a department similar to his own.

The study of science in relation to its effects on society from the economic, social and philosophical viewpoints, in terms of an established university course, is unique in the world. Prof. Jevons was the first person to set up such a department.

Prof. Jevons, who will be in India from December 16 to January 16, will spend some days in talks at the Indian Institute of Technology, Bombay, before setting out on a tour of other Indian centres to assess opinion. He plans to make short visits to Ahmedabad, Delhi, Varanasi, Calcutta, Bhubaneswar, Hyderabad and Bangalore. On his return to Bombay he hopes to draw up a syllabus for the Institute.

Prof. Jevons said in an interview: "My main interest will be to see how the educational innovation would transplant into another culture."

At Manchester University, Prof. Jevons is concerned with the place of science in education, the effects of technological innovation on science policy, and the value of scientific training in management.

Prof. Jevons, 43, was educated at Cambridge University, where he gained a first-class honours degrees and a Ph.D. He later held a post-doctoral fellowship at the University of Washington, Seattle (*U.S.A.*). *He* spent six years (1953-59) as a Fellow of King's College, Cambridge, and for the next seven years was a lecturer in biological chemistry at Manchester University. *He became* Professor of Liberal Studies in Science at Manchester in 1966.

FIRST NUCLEAR HEART

In the United States, a nuclear-powered artificial heart has passed preliminary tests and is ready for long-term implantation in experimental animals. The plutonium-238-powered, steam unit is seen by the National Institute of Health as an aid to many thousands of persons who die annually from heart disease. If animal studies are successful, human tests could begin by the end of the decade. Dr. Theodore Cooper, director of the National Heart and Lung Institute, said that the unit might cost about $5,000.

An experimental unit has been implanted in 75 calves during the past six months. The implantations ranged from 2 to 10 days. Because there is only one unit, the calves must be killed to regain it for further testing. The 3 x 8-inch, 6-pound heat source and engine is implanted in the abdomen, with the control unit placed near the heart.

It's likely, therefore, that those whose hearts are sick, either because of love or illness, will live now much longer than expected. Only a computer can tell what its effect will be!..

COCHIN UNIVERSITY TO MOVE INTO A PALACE

The Kerala Cabinet has decided to take over the Hill Palace of the former Cochin royal family at Trippunithura for housing the Cochin University.

The announcement was made by the Chief Minister, Mr. C. Achutha Menon, *who told newsmen* that the Maharaja of Cochin Royal Family had offered to hand over the palace to the Govt; and that the Govt. had decided to accept the offer. The possession of the building and the likely compensation would be decided later, he said.

D.M. COLLEGE LECTURER THROWS NEW LIGHT ON PRE-HISTORY OF NORTH-EAST INDIA

A lecturer in Anthropology at Imphal's D.M. College, Mr. O.K. Singh has collected tools and artifacts of both the palaeolithic and neolithic culture of the Stone Age from a site in the Tongnoupal Subdivision of the Manipur Central District. The tools are a hand-axe, borer, scraper, flakes and neolithic celt.

This is the only site discovered so far in Manipur, which give clues both to the palaeolithic and neolithic cultures.

INDIGENOUS CONTROL EQUIPMENT EXHIBITION INAUGURATED

An exhibition of indigenously developed control equipment for diesel locomotive was inaugurated by Shri C. Subramaniam, Union Minister for Industrial Development, Science & Technology at the ceremonial Platform, New Delhi Railway Station, at 3.30 PM on Tuesday, December 19, 1972. Shri T.A. Pai, Union Minister for Railways presided.

(Continued on next page; col. 1)

Amaresh Gupta—An Indian Scientist in West Germany

Bonn (INB) — Amaresh Gupta, an Indian from Jhansi, is concerned with teeth and bones as scientific assistant in the mineralogical-petrological institute at Bonn University. His precise designation is crystallographer, in which capacity he is required to examine biological crystal formation, mainly in teeth and bones. This research work is important in the fight *against caries and in the manufacture* of synthetic bones, substitute bone parts and false teeth.

Amaresh is at present writing his dissertation on this subject. He in 1969, on the basis of a dissertation on dental cements.

Medical research is carried out in the Federal Republic of Germany not only at 30 universities and university institutes, but also at some 25 institutes and clinics operated by the Max Planck Society, by the German Research Community and *numerous other* state-financed and private research *institutes.* State expenditure on the promotion of research and development in the health sector totals around 800 million DM a is doing this for the second time,

year. This represents some 11% because when he submitted his first *dissertation, his professor* unfortunately died. But Amaresh was not discouraged by this ill stroke of fate, although an alteration in examination rules in German universities threw his plans into chaos, forcing him to obtain a diploma prior to his dissertation. This, too, he obtained of overall state spending on research and development projects.

In its recent research report, the Federal Government specified new developments in biology and medicine advancing the use of natural scientific and technological methods as focal points of medical research. Their purpose

(Continued on next page; col. 1)

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is to diagnose, treat and prevent illnesses. Priority is given in this to research work which provides doctors with bio-medical techniques which improve diagnosis and therapy. Research spending is directed also towards development of instruments which take over body functions such as organic aids and artificial limbs.

This is the field in which Amaresh Gupta is engaged. Main ambition of this 31-year-old crystallographer — who studied chemistry and mathematics at Sagar University in central India — is to obtain a long-term research commission at a research institute. And the prospects of his carrying out this plan look good. His activities in the development of synthetic substitutes in medicine are much in demand. Much remains to be done in the field of rehabilitation research, and this is true in the Federal Republic of Germany as well as in other countries. Amaresh has even received a research offer from the United States. But for the moment, he plans to spend a few months in India looking for work in his homeland.

(Continued from pre. page; col. 1)

The exhibition was organised by the Council of Scientific & Industrial Research (CSIR) in collaboration with the Central Electronics Engineering Research Institute (CEERI), Pilani, Diesel Locomotive Works, Varanasi, The Electronics Corporation of India Ltd., Hyderabad and the Heavy Electrical (India) Limited, Bhopal. The exhibition was opened to public after the inaugural function.

ATTACK ON ILLITERACY

With a combined government and private effort, the United States is seeking virtually to eliminate illiteracy by 1980 through a nation-wide "Right to Read" programme.

One per cent of Americans 14 years of age and older are illiterate, according to the US Bureau of the Census.

Other surveys, such as one taken for the National Reading Council, an independent organization supported by the US Government, have found that three times as many persons are "functionally illiterate" in their daily lives because of slowness in comprehending written instructions. It is these persons as well as full illiterates that the "Right to Read" programme aims to help.

The President's wife, Mrs. Richard Nixon, has said: "A massive national effort will be successful only to the extent that it is shared by us all. Needed are people from all walks of life, all ages, contributing their time and talents to helping other fulfil their right to read."

(UNESCO Features)

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MAGAZINE!**

FUNDS FOR PUBLICATION OF HINDI SCIENTIFIC BOOKS

At a three-day Seminar on publication of scientific books in Hindi, organized by the Bihar Hindi Granth Academy in the Department of Zoology of the Ranchi University, the Union Deputy Education Minister, Mr. D.P. Yadav assured scientists: "Money will not come in the way of publication of standard scientific books in Hindi."

The Minister also said that a uniform national educational system was being introduced everywhere. He regretted that a 1-crore-rupee fund, kept apart for producing scientific books in Hindi, was not being fully utilized; if it was properly utilized it could be doubled in the Fifth Plan.

The Seminar was presided over by the Vice-Chancellor, Mr. R.S. Mandal. The Seminar was attended by delegates from all over India.

DEAN OF STUDENTS APPOINTED

The Calicut University has just selected for appointment its first Dean of Students. Dr. N.A. Karim, of the Kerala University Institute of English, Trivandrum is the person selected. Calicut University is the first University in Kerala and probably the first in South India to appoint a dean to look after the welfare of the students in its affiliated colleges. The appointment of a dean, it is hoped, would help foster better liaison between the students and the authorities.

UNIVERSITIES

VINOBA BHAVE GETS D.Litt. FROM GUJARAT UNIVERSITY

The Chancellor of the Gujarat University, Shri Shriman Narayan, and the Vice-Chancellor Shri Ishwarbhai Patel this morning conferred the Honorary Degree of D. Litt (Vidya Vachaspati) on Acharya Vinoba Bhave at the latter's Paramdham Ashram at a simple ceremony shorn of all the sophistication and pomp of a convocation, which however looked like another convocation.

It appeared as if the Gujarat University had come all the way from its headquarters at Ahmedabad to honour one of its old alumni, but not so much an *alumni* as a *genius* in various disciplines. It was a different kind of convocation in which the giver of the degree felt humbled before the receiver.

The degree was presented to the 78 years old sage by Mr. Ishwarbhai Patel and the shawl placed around Vinobha's neck by Mr. Shriman Narayan. More than a hundred persons gave a hand at the ceremony as Acharya Vinoba, seated on a dais, received the degree.

SUBLIME EXCITEMENT

It was a scene which proved the legends about the Ashramite life of yore to be true to a word. The cottage in the background, the river Dham on the south, a temple in one corner, the limited audience seated on the ground under the shade of trees, and a bhajan and the recitation of Vishnu Sahasranama preceding and following the ceremony filled the heart with a unique but sublime excitement and sent the mind back to the history of forgotten hermitages.

Shri Shriman Nariyan Chancellor of Gujarat University confers D. Litt. on Shri Vinoba Bhave on December 16. The Vice-Chancellor, Shri I. J. Patel (right)

The citation, read out by the Vice-Chancellor, Mr. Ishwarbhai Patel began with a reference to the sages of old brought back to the mind in the person of Acharya Vinoba and a great and unmatched gift of Indian culture to the modern world.

The Acharya, according to the citation, is personification of the trinity of Jnana, Bhakti, and Karma.

"Acharya Vinoba Bhave is not merely a preacher or interpreter of religion. He is religion personified. Well-versed in all the Indian languages, he has mastered Arabic and a number of Euro-Asian languages to be able to establish direct and affectionate contact with all people of all groups," said the citation.

The philosophy of Bhoodan and Gramdan is pregnant with the hopes of universal peace, creating social and economic justice, dissolving all factors giving rise to inequality and discontent, and exploitation and wars. Vinobaji aspires to coordinate science and spirituality on the basis of Ahimsa and love to create a self-governed, self-disciplined, self-regulated society," said the citation further.

"The Gujarat University", said the citation concluding in presenting this degree to a versatile genius finds itself filled with gratitude, and with love for the eternal student of science, religion, philosophy and contemporary social thought."

CHANCELLOR'S REMARKS

The Chancellor, Mr. Shriman Narayan, in his introductory remarks at the ceremony, recalled a similar ceremony when a University had stepped out to honour a great man viz. Calcutta University honouring Rabindranath Tagore. The Gujarat University had decided on this degree for Vinobaji and had asked him and the Vice-Chancellor to come all the way to submit it to him. A perpetual student of all branches of knowledge, Vinobaji was being regarded as an ocean with its origin in Baroda and Sabarmati. The University claimed no honour to Vinobaji in conferring this degree on him.

Before reading the citation, the Vice-Chancellor, Mr. Ishwarbhai Patel said when the idea of conferring the degree on Vinobaji was mooted, it was felt that the degree itself was being honoured. Learning, as was supposed widely, was confined to the precincts of the University though in fact there could be no limit to it. And, no better example of such learning could be obtained as in the person of Vinobaji, and the University felt that this would serve students of the University well in emulating his example.

VINOBA'S REPLY

Replying to the honour, Acharya Vinomba Bhave expressed his pleasure that the degree was written in Devanagari Gujarathi. He himself had of late been advocating the use of Devanagari script for all Indian languages in a bid to create a unity in script. India, he said, was sociologically more advanced than Europe which with every language group was split up into so many nations. In India, despite so many languages their source viz. Sanskrit was one, the thought was one and no visas and passports were needed for a journey across various States. If only the script could be one, the best literature from one language could with conspicuously less difficulty be understood in the other and integrate all language groups. That the Gujarat University had done it in the citation scroll had made him happy.

Replying to a question which a friend had asked him earlier as to how he would bear the burden of the degree, he said it was conferred by Pandits, and had he declined it he would have been charged with lack of modesty. The level of learning all over the country had gone down so much that he was comparatively more learned than others which he confessed he was (Laughter).

As for the burden of the degree, said Vinobaji further, it would stay with him until he went to sleep. Sleep to him was synonymous with death, and awakening next morning another birth. Therefore the D. Litt would remain with him until the night, to be turned into Delight the next morning.

Mr. Shriman Narayan proposed a vote of thanks.

The function ended with an Abhang sung by Sevagram troupe and recitation of Vishnu Sahasranama.

G.B. PANT STUDENTS ARE SORV....

Pantnagar — The striking student leaders in a joint written declaration tendered to the Vice-Chancellor of the G.B. Pant University of Agriculture and Technology have unanimously and unconditionally expressed regret for the acts of organized indiscipline that occurred on the campus on 11 and 12 September and 11 and 12 October, 1972. They said that all the unfortunate happenings occurred due to misunderstanding which has since been removed. The student leaders said that they have full faith in the administration of the University and firmly believe that all grievances and problems of students should be settled by peaceful and constitutional means. The student leaders also advised all the students to attend classes and participate in other activities of the University according to programme without indulging in acts of indiscipline.

In a unique gesture, unheard of in this country, the student leaders not only agreed to accept whatever punishment is awarded by the University but also vowed to withdraw voluntarily and unconditionally from the University for the first trimester of 1972-73. The academic staff and the University authorities, on their part, have assured to make good the loss in the studies of the students by working on holidays and by running a supplementary programme along with the second trimester. Against the background of the prevalent defiant mood of the students elsewhere, this rare gesture of the Pantnagar students to volunteer to suffer self-imposed punishment is widely appreciated. This is in keeping with the traditions of this great Farm varsity.

In view of this voluntary undertaking of the student leaders, Dr. D.P. Singh, Vice-Chancellor has ordered the opening of all the classes of the University from December 12 excepting those already called on December 4 and 11. The Vice-Chancellor also expressed his gratitude to the guardians of the students for their hearty and sustained co-operation.

Agricultural University, B'Glore 7th Convocation

The Seventh Convocation of the University of Agricultural Sciences, was held at Bangalore on November 11, 1972 at which Dr. M.S. Swaminathan, Director-General, Indian Council of Agricultural Research and Secretary to the Govt. of India was the Chief Guest.

The Vice-Chancellor, Dr. K.C. Naik reviewed the tremendous progress the university had achieved in the preceding year. He raised the question posed by Dr. Swaminathan—"How shall we use agricultural research and development programmes for the purpose of providing more remunerative and intellectually satisfying jobs in rural India? How can we use our agricultural renaissance as a method of solving the poverty problem?" He thought that he could do no better than to emulate his performance "by presenting before you a report to indicate how this young university had endeavoured to do something about those very problems."

He felt that new varieties or hybrids, with higher yield potentials, would make farming more paying and also create more employment opportunities. Keeping this in mind, the university had released 18 improved varieties (of new hybrids).

In the case of Paddy the MR-136 variety, which had been released that very afternoon, he claimed, had made according "a pre-release spread-over of about 20,000 acres in the State."

According to Dr. Naik, farmers of the State should be able to earn something like 60 lakhs of rupees more. In the case of Rago, the figure would be 1.8 lakhs and Jowar would, on rough estimates, bring an additional Rupees 2 crores income to them.

A view of the Convocation

In the case of Cotton, he claimed that the success achieved by the university leaders by obtaining an inter-specific hybrid between *G. hirsutum* and *G. barbadense* was virtually a break-through: the USSR was still striving to achieve it according to the report of an Indian delegation which went there recently.

Current research was progressing still and that the university was in the final stages of trial on 2 kharif and 2 rabi hybrids with distinctly superior characters.

In the field of Horticulture, work had been going on for the last three years on cardamom improvement. The yield can be increased appreciably through clonal progenies of high-yielding parents.

Dr. Naik also dealt with the Fisheries Science. The fisheries college was started at Mangalore in 1969. It was a virgin field, and he felt that the institution had been able to show an impressive record of service even in such a short period. Among its achievements could be included the use of pituitary glands which helps in inducing fish in confined water; the other finding relates to stimulated and hastened growth of fish through supplemental feeding; and that the exotic grass carp brought into India in 1959 as part of biological control of weeds, has been found to be a good table fish.

The UNDP, in collaboration with UNESCO/FAO and the ICAR, has selected that university as an advanced centre in plant protection based on the availability of technical competence and basic research facilities in the field. The first phase of the project has been sanctioned for two years but is likely to be extended to the phase two for five years next.

Short term courses—one in Acarology; another in Plant Virology—were conducted on an All-India basis during October 1972 for the benefit of teachers and research workers in agricultural colleges and Research Institutions. Another Seminar on Plant Protection is likely to be held during the current year.

The post-graduate research and teaching programmes under the project would strengthen such areas of specialization, as Insect Physiology, Plant Virology, and Plant Nematology.

Research on Drought

The university has come up with certain encouraging findings of its research on drought conditions in the State.

Pre-sowing seed hardening has been found to be effective in inducing certain amounts of drought tolerance in ragi. It results in early germination, seedling vigour, better root growth and better response to fertilizer.

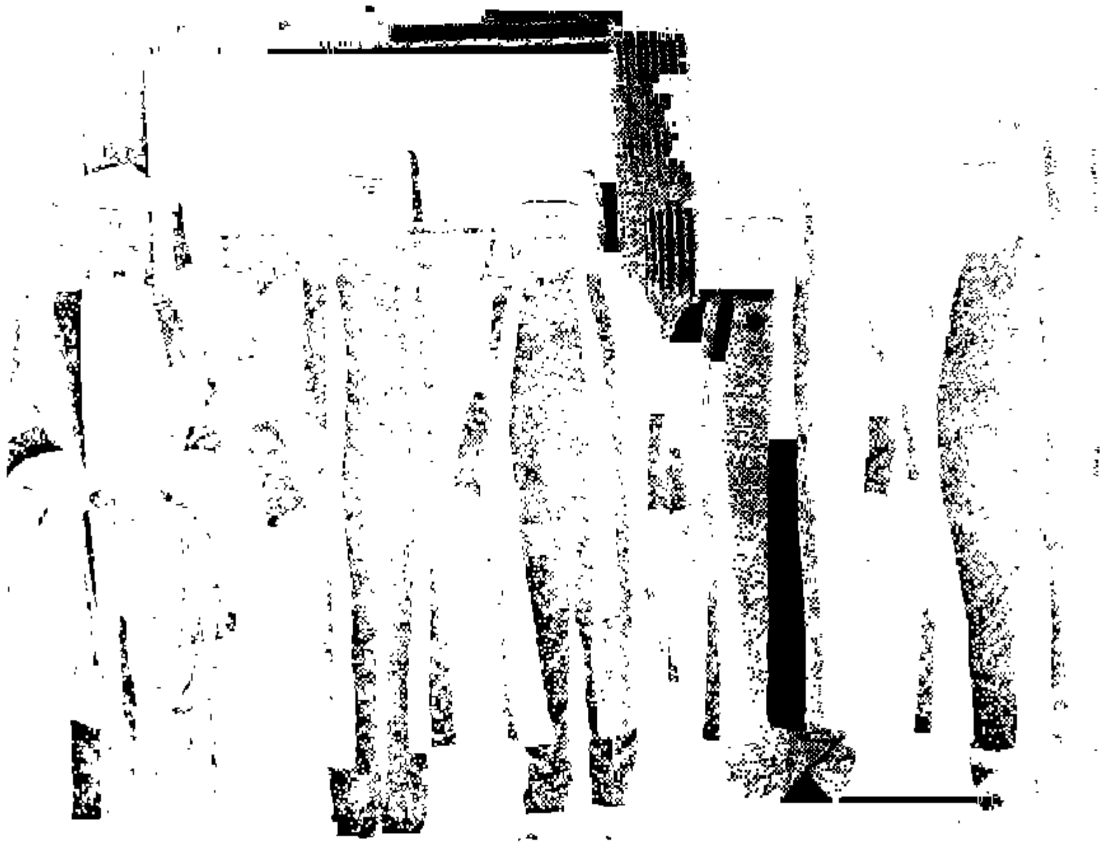
Studies made on the rainfall received on the Western Ghats have indicated that a vast mass of the water received there and now flowing to the Arabian Sea can be collected through reservoirs, which could be developed among the criss-cross hills, to hold enough water to provide protective irrigation over almost the entire rainfed area of the State.

The university has organized various types of training programmes for the benefit of extension personnel of its State Departments of Agricultural, Animal Husbandry and Veterinary Services and Fisheries, as recommended by the High Power Committee of the State Govt.

Since April 1972, as many as eight training programmes have been conducted, consisting of 37 courses and attended by over 700 people. There are still three more programmes and seminars being planned for the rest of the year.

Extension Services

The university extension activities are intimately linked with research and it is because of prompt transmission of what it finds in research studies to the farmer, and by him into his field. Apart from Bangalore and Dharwar areas, now it is being extended to Raichur also.



The Chief Guest, Dr. M. S. Swaminath an, photographed with the Chancellor, the Vice-Chancellor, the pro-Choncellor and the Chief Minister. Left to Right—Dr. Swaminathan; Shri Mohanlal Sukh adia, Mysore Governor; Shri Urs, Chief Minister

The university has also introduced a post-graduate diploma in intensive crop production. It is the view of the university that so far eight agricultural graduates have passed this one-year course—introduced in 1970. The net profit earned by each graduate on average per month comes to Rs. 475 in the first batch of 3, Rs. 503 in the 2nd batch of 2 and Rs. 559 in the 3rd batch of 3. A course in vocational training for diploma students for the Agricultural Engineering Institute has also been started this year. Two acres of irrigated land and 3 acres of dry land have been assigned to each of the 5 students for farming their own with the aid of implements and machinery hired for them by the Institute.

In relation to this a post-graduate course in Fisheries Technology has also been one of the strongest features of the Fisheries College; 3 courses have been offered in Bakery, one for village housewives through the University Mobile Bakery Unit and another for urban housewives, each for a short duration of 3 to 4 days.

Kurukshetra: the all India Seminar on Late Harappan Culture

—Reported by Mr. O. P. Tandon

An All India Seminar on the Late Harappan and other "Chalcolithic Cultures of India: A Study in Interrelationship" and VI Annual Session of the Indian Archaeological Society held at Kurukshetra University, Kurukshetra from 19th to 21st November, 1972, was attended by such well-known archaeologists as Prof. H. D. Sankalia of the Deccan College, Poona, Prof. B. B. Lal of the Jiwaji University, Gwalior, Shri M. N. Deshpande, Director General, Archaeological Survey of India and Prof. S. B. Deo of the Nagpur University, besides other Indian and foreign archaeologists were present.

Dr. S. K. Dutta, Vice-Chancellor, Kurukshetra University inaugurated the conference. In his inaugural address, he said: "Reconstruction of history purely from literary sources is always a precarious business."

He held that literary evidence reinforced by archaeological evidence tends to identify and track down elements of cultural continuity and establish links that connect people with their neighbouring countries as well as with their predecessors.

"Archaeological evidence", according to Dr. Dutta, "bears close resemblance to circumstantial evidence of law courts; but this evidence, like any other evidence, has to be subjected to the process of scientific examination."

Dr. Dutta said that any uncritical acceptance of archaeological evidence was bound to distort truth of the past. One has, therefore, to be a cautious and meticulous detective while archaeological finds.

Referring to the site of the battle of Mahabharata at Kurukshetra, Dr. Dutta said that it was there that much of the Mahabharata period awaited the space as also the deciphering of the Harappan script in the earlier period. The cause of the Indus Valley Civilisation and its relations with the Vedic culture still eluded historians.

So far as the study of ancient India was concerned, history without archaeology was friendship without devotion, and religion without metaphysics.

In his presidential address, Mr. R. C. Agarwal, Director, Archaeology and Museums, Government of Rajasthan, appealed to archaeologists to give sufficient attention to the excavation and exploration of early medieval sites of considerable importance. In fact, more and more has to be discovered about the historical centres in the country. He asked his colleagues in the profession to devote more and more time to the study of Indian epigraphy, art and architecture, ancient Indian literature in addition to an interest in pottery and pre-historic tools.

Mr. B. K. Thapar, Director, Archaeological Survey and the Secretary of the Society, presided over the deliberations of the Seminar which were marked by lively debate in which participated both senior and younger archaeologists actively. The Seminar began with Mr. Thapar's paper in which he outlined the main cultures, which succeeded the Harappan. He also pointed out that Harappan settlements were of three types—cities, towns and villages, with towns serving as a link between cities and villages. According to him, monumental architecture and script were distinguishing traits of cities and towns. The evidence about the religion of Chalcolithic peoples, as revealed by recent excavations in Maharashtra and Madhya Pradesh, was the subject of a talk by Dr. M. K. Dhavalikar of the Deccal College Poona. Dr. Dhavalikar also drew attention to the West-Asiatic parallels. Dr. N. R. Banerjee and Shri K. Deva of the Archaeological Survey of India drew attention of scholars by highlighting certain points relating to aspects pointed out by Dr. Dhavalikar. The newly-emerging picture of transformation of the Harappan Culture in the Punjab and Haryana as revealed by their recent work at sites like Ropar, Bara, Kotla Nihang, Sanghol, Mitathal, Siswal, Daulatpur etc., was presented by Dr. Y. D. Sharma of the Archaeological Survey, Shri Suraj Bhan of the Kurukshetra University and Shri R. S. Bisht of the Haryana State Archaeology. Dr. K. K. Sinha of the Banaras University, Dr. S. P. Gupta and Shri K. N. Dikshit of the National Museum, Dr. D. P. Agarwal of the Tata Institute of Fundamental Research Bombay, Shri K. C. Joshi of the Archaeological Survey, New Delhi and others initiated a lively debate on the topic. The settlement-patterns of the Chalcolithic Cultures in Central India as disclosed by excavations at Tripuri and Eran were described by Prof. K. C. Bajpai of the Saugar University and Dr. U. V. Singh of the Kurukshetra University. Shri V. S. Wakankar of the Vikram University, also elaborated on the details of the cultural equipment of the Chalcolithic peoples in Malwa, particularly with reference to the excavations at Manoti and Kayatha. Particularly interesting was an illustrated talk on his excavations at Surkotada in Kutch by Shri J. P. Joshi of the Archaeological Survey where he has found a fortified settlement and successive occupations of pre-Harappan, Harappan and Post-Harappan cultures.

Prof B. P. Sinha of Patna University and Prof. B. B. Lal of the Gwalior University were elected as the Presidents for the 1973 and 1974 sessions, respectively, of the Archaeological Society.

Prof. H. D. Sankalia, an eminent archaeologist and Director Deccan College, Poona, said in a public lecture that during the last 25 years, Indian Archaeology had made tremendous progress. He was speaking on "Contribution to knowledge by Indian Archaeologicy since 1947". If the progress is to be described in one sentence, Prof. Sankalia added, "almost every corner of India from Kashmir to Kanyakumari, and Dwarka to Bhuvaneshwar has given evidence of the existence of Early Man, who lived at least one lakh years ago". We have evidence from all over India for his successors who lived some 50,000 years ago, 20,000 years and 9,000 years ago and, finally ,the stage when man settled down to an agricultural way of life, about 5,000 years ago. Prof. Sankalia concluded: "Thus the foundation has been laid for understanding the growth of various regional and linguistic divisions, which have characterized India throughout her history".

Dr. S. K. Dutta, Vice-Chancellor, Kurukshetra Univtrsity, presided over the meeting.

Calicut University to set up "Asan Chair"

A week-long celebration of the birth centenary of the Malayalam poet, late Kumaran Asan was organised under the joint auspices of the Calicut University Asan Centenary Committee and the Kerala Granthasala Sangam.

Presiding over the concluding function, Prof. K. Madhaya Menon, Pro-Vice-Chancellor of Calicut University, announced that an "Asan Chair" would be instituted in the university and appealed to the public to contribute generously to help raise the sum of Rs. 2 lakhs necessary for the purpose.

All the seven days functions were well attended and there were recitals of Asan's poems by university scholars and college students.

Inaugurating the celebrations, the famous poetess of Kerala, Mrs. N. Balamani Amma, said Kumaran Asan was an unparallelled poet of immortal love and that he took ordinary love to the most elevating pinnacles of divine life.

Prof. Sukumar Azhikode, Head of the University Malayalam Department traced the development of Asan's style.

During the ensuing six days, speakers dwelt on the different aspects of the poet's creative life.

BHU Decides to Include Student Observers in Departmental Selections

A concrete step was taken in the year 1970-71 when the Vice-Chancellor, Dr. K. L. Shrimali constituted a Students-Teachers Consultative Committee consisting of the representatives of the students and teachers. This Committee and other bodies constituted as a result of deliberations led to many steps taken towards closer association of the students in the various activities of the University which are as follows:

1. Award of freeship and other relief measures taken during difficult periods such as flood and drought etc;
2. Financial assistance to the research Scholars who are not able to get scholarships;
3. Participation in games and Sports Committees;
4. Participation in hostel administrations and running of messes etc.;
5. Representation on the Admission Committees;
6. Programming of the examinations;
7. Participation in the Departmental Committees for the purpose of changes in syllabuses.

This will clearly reveal that the students are now actively engaged in practically all the academic and extra curricular activities of the University which is the result of the meaningful dialogue started about three years before.

Dr. Reddy Inaugurates 3-day Seminar on Multi-Media Communications

Dr. D.J. Reddy, Vice-Chancellor, S.V. University inaugurating the three-day seminar on Multi-Media Communications held on 23-11-1972, highlightened the importance and necessity of exploiting the educational technology in order to get closer, be more precise and better comprehensive to school children as well as the masses.

Dr. Reddy presented a panoramic picture of the new communication media and illustrated how they can be used for the in—depth communication of our educational intentions and instructional needs. Further he said motion pictures have unique capacity for precision and refinement of communication that enables an educational efficiency unmatched by any other visual medium.

Referring to the advantages of using audio-visual aids, Dr. Reddy stressed the need to provide an improved and high standard of learning environment where creattiveness can be encouraged.

Further, Dr. Reddy stressed "Padagogy has taken deep root in our teaching method in schools and colleges and owing to lack of resources financial and technical know-how we are yet to introduce programmed learning and educational technology as our learning aids. The Speaker illustrated how the spoken world can fly away, the written word may not be available, but the audio-visual illustrations will always remain impressed in the mind.

Lastly while reinforcing his talk by the projection of 83 slides, he stressed the urgent need for research into multi-media communication techniques and their bearing on education.

Earlier, welcoming the audience, Dr. Sreenivasa Rao, Director of the Seminar pointed out the main objectives of the Seminar, and Prof. Ramasarma in his presidential address stressed the need to use of educational technology should be a must in order to meet the instructional needs of ever increasing masses of students.

The three-day seminar was followed by group discussions in both sessions, demonstration language laboratory equipment etc., exhibition, screening of films and filmsstrips.

Five eminent key-note addressants presented the key-note adresses.

In his concluding sessions address held on 24-11-1972, Dr. Reddy, summarising the Rapporteurs discussions, said, that the use of electronics or educational technology at all levels of learning would only enrich and enhance learning and raise the prestige of the teacher and institution. Emphasising for the improving teaching through A.V. Aids, he said the Engineer, Psychologist, Psychairist, Sociologist and educationists should join in the interprise. He suggested that the teacher recruit to a college and University need to acquire sufficient knowledge of the objectives and goals of education and the methodology and psychology involved in conveying of the message of the lesson to the pupil.

Speaking at the concluding session of the Seminar, Dr. Reddy said that the Education Department of the University should become a consultant organisation for the schools and colleges to improve the teaching methods and for suggesting teaching aids for them. He desired that Tirupati should have a broadcasting station so that the students of the area might benefit from the broadcasting programmed by the University.

The Seminar recommended to Sri Venkateswara University to set up a teaching aids centre at Tirupati to help the schools of the area.

The Seminar ended with a vote of thanks proposed by Mr. V.L.N. Reddy.

Gauhati University Resents Over-Lapping of Jurisdiction

The Executive Council of the Gauhati University, at its recent meeting at Gauhati, expressed concern over the proposed inclusion of Assam State within the jurisdiction of the proposed Central University at Shillong. While the Executive welcomed the proposed Indira Gandhi University, it urged, by a resolutions the Parliament and the Govt. of India to exclude the State of Assam from the territorial jurisdiction of that Central University, because such overlapping of jurisdiction would adversely affect the academic and cultural interests of Assam.

GOVERNMENT OF INDIA

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Indian Historical Records Commission Vol. XXXIX Proceedings of the Thirty-Ninth Session, Patna, December 1969 *Issued by National Archives of India, New Delhi.*	14 00
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'MADE IN INDIA' is a label that is gaining prestige abroad, day after day. The ships that touched our ports twenty-five years ago used to unload blades and soaps for which we had depended on foreign manufacturers. India now makes a variety of sophisticated engineering goods and electronic equipment for the choosy customers in far-off lands. Our scientists at Trombay manufacture heavy water for atomic energy establishments abroad. India's foreign trade has now gone up to Rs. 34190 million - four times more than in 1947.

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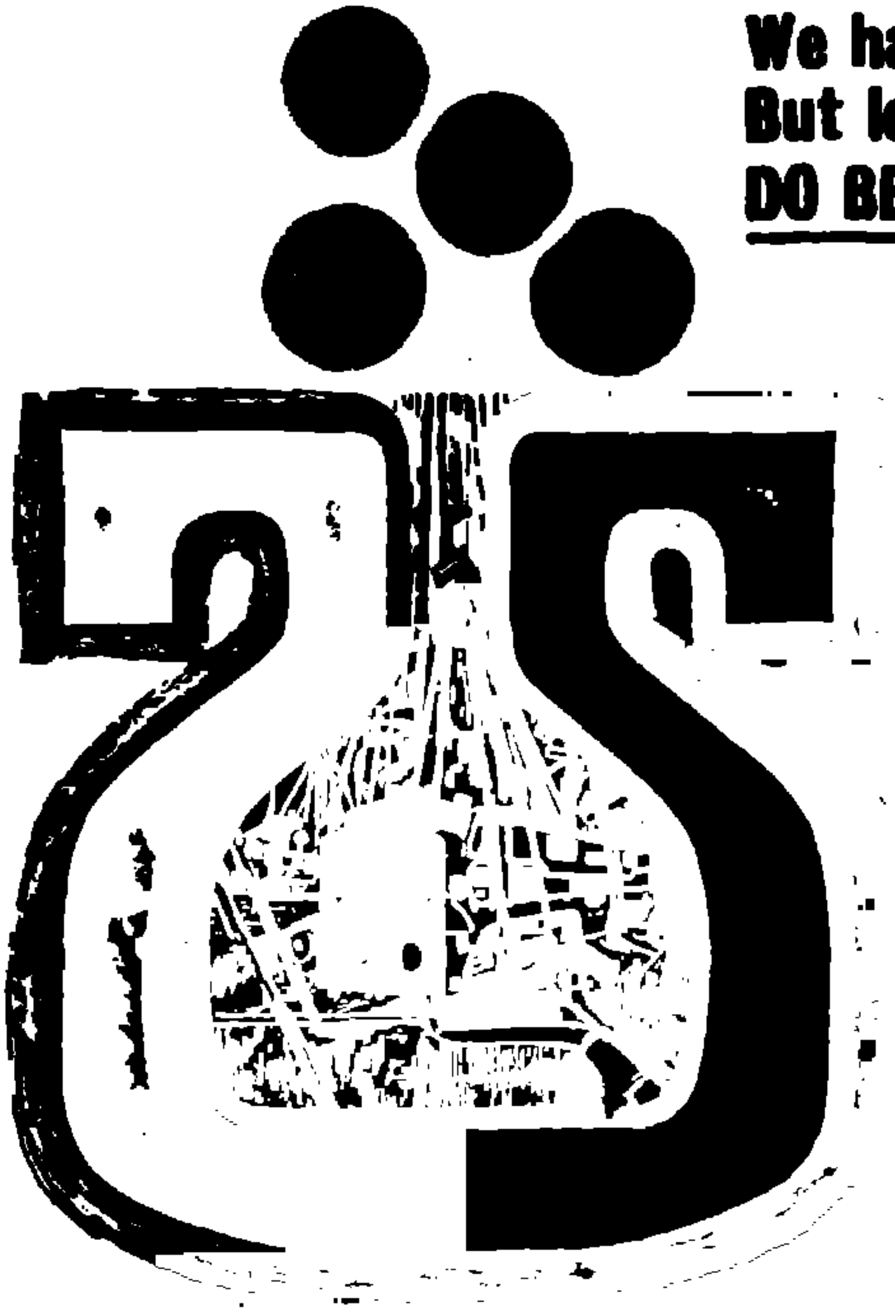
But let us
DO BETTER.



DAVP 72/210

VIEW-POINT

Olympic Games-Some Angles in my Opini

At the outset, I would like to *highlight the non-whites' contribution* in the cause of the Games, thus advocating multi-racial sports. However, although to describe individual contribution of non-whites is effective, to present an overall picture on the subject is rather impossible; in fact, the results of the past Olympic Games have necessarily been published without regard to colour or origin. I will, therefore, dwell on the apartheid policy in general.

The world is aware of "Hitler's race theory" ridiculed by the excellent performances of Jesse Owens. This shows that sport can overcome differences of human beings.

Even today, quite a number of promising athletes is undergoing hardships from racial prejudices by fellow-countrymen. Why should the fittest sportsmen struggle for survival because of their skin colour? They have every right to participate in international competitions. This would bring to prominence the best talents the world over. Unfortunately, some politicians are not inclined to show positive approaches in this cause.

Undeterred by the present wave of racial segregation, the coloured men take to sport with pride, sincerity and dignity. A healthy sign in recent times is that a crusade by friendly athletes is already on its way.

As far as the author's knowledge is concerned, there seems to be no obvious findings on the superiority of the whites over the non-whites. If we have to view the problem through the eyes of a biologist or a sociologist, we may wonder whether the "colour bar" in South Africa and the U.S.A. powerfully exists as a "race bar". Persons with negroid ancestry many times match the appearance of those originating from Europe. We have not a sufficient knowledge of the role of the genes responsible for the colour of the skin, or the shape of the hair, and of those accounting for personal achievements. Henceforth, the very purpose of much practised colour bar gets defeated.

As far as apartheid in sports is conrerned, there seems no likelihood of success. The Olympic principles have no room for segregation of the races, religions and faiths, and we must struggle for it.

It is the Olympic Movement — the figure-head of the sports world — which can establish peace in the continents, by assembling every four years, irrespective of their race or nationality. I would even say that the Olympic ideal is synonymous with the democratic principles of fair play, gallant gentlemanliness, general as well as sporting education, harmony, peace, dignity. The Olympic humanism provides stimulus to the young generation of the world through *"Citius, Altius, Fortius"*.

In fact, the Olympic Games face a brilliant future, since they are the only organisation which can promote better understanding in
world and bring an end to
If we can get rid of apartheı
sport, the Olympic family
spread all over the world.

This is to wish good luc
all the competitors of the
Olympic Games as well as f
games.

Dr. G. M. Oza
M.Sc., Ph.D., F.L.S.
General Education Centre
M.S. University of Boroda

GLARING ERRORS IN GEOGRAPHY BOOKS

Wrong geographical conc
statements and sketches and
dated information about coun
mark the series of geography b
for schools. published by the T
Nadu Textbook Society, a p
sector unit bringing out nati
ised textbooks.

Many teachers fear that
books which are replete with
takes will bring down the st
ard of geography education
schools.

The following are some of
"glaring mistakes" in the b
pointed out by teachers who
them: In the map of Tamil
in the V standard book. A
mudi is shown within the bo
ary of Tamil Nadu, whereas
mountain peak lies in Kerala.
height is 2,695 metres and
2,720 metres as given in the b

The 1958 figures of the po
tion of U.S. and New York
given in the book for VIII st
ard. It says "Soviet Russia r
fourth in world prodution of
(according to latest informat

however, Russia occupies the second place). Other statistical information about U.S. are all old.

In the IX standard book the equatorial and polar diameters are given as 12,680 K. metres and 12,640 K. metres respectively, but the correct distances are: 12,756 K. metres and 12,714 K. metres respectively. "Eightytwo-and a-half degrees" is written as 82°50' (it should be 82° .30').

The book says: "The frigid zones close to the poles are very cold region. Here the sea is always frozen and all through the year the sun will be circulating round the horizon or slightly above the horizon. . . . ." Pointing out that the statement contained contradictions, a veteran geography teacher said: "The entire sea is not frozen all through the year in the arctic region. In summer, certain parts of the arctic sea near the arctic circle are warm and are not frozen. There is no sea surrounding immediately the south pole. The sun is not visible all round the year at the north or south pole." According to the book "the speed of the meandering river is less at the place where it bends or turns and is more at the opposite bank. . . . ." (actually, it is the other way about).

Some of the defects and wrong statements in the book for X standard are: "Europe is Asia's peninsula" (Eurasia and not Asia). "Italy and Balkan peninsulas are two plateau regions....." (they both form part of a great system of fold mountains and not plateaus). The South-West monsoon winds give rainfall to India, Burma and Malaysia." (Ceylon is omitted). The book says "the South-East trade winds blow over Indo-China, China and Japan during summer" (the S-E trade winds blowing in the southern hemisphere after crossing the equator blow as the S.E. monsoon winds across the Pacific Ocean and give rainfall to China, Japan, etc.).

Tamil equivalents for the following English words do not convey the correct meaning. Uplands, Highlands and Plateau; air, wind and atmosphere. In one of the books equator is called "bhumatya regai" but in another it is termed "Nila nadu kodu."

The reason for the poor quality of the books are explained as follows: The right type of authors are seldom invited to write the books, since favouritism plays a prominent part in selecting the authors. As the books do not carry the authors' names, they do not bother about the commissions and omissions. The authors are not required to correct proofs and hence they do not know in what shape their manuscripts finally emerge.

Teachers also complained that the experts' committee members who went through the manuscripts were themselves not properly chosen. Some of them were not in touch with the subject.

Mr. M. P. Rajagopal, Secretary, Geography Teachers' Association of India, who has made a special study of the geography textbooks, said nationalisation had only brought down the quality of the books. "I am afraid the textbooks which are of poor quality will lead to a deterioration in standards", he said.

He said more than the students, teachers depended heavily on the textbook as most of them had not specialised in geography (they have a degree in history or economics). Unless a good textbook is placed in their hands the quality of teaching is bound to suffer," Mr. Rajagopal said.

The Tamil Nadu Government has almost completed nationalisation of school textbooks early this academic year. Only books for some of the elective subjects and in minority languages are yet to be published by the Government.

— Courtesy THE HINDU

(Continued from page 13)

Houses of the Future

As the exhibition catalogue points out, there will have to be more building between now and the year 2000 than in the past 1,000 years. The growing world population means that new urban systems will have to be thought up, which might no longer consist of solidly fixed houses but could prefer transportable units which can be set up on steel scaffolding.

It is impossible to predict which way things will actually develop. The only certain thing is that completely new roads will be taken.

(Courtesy: "Scala International")

DIVERGENT THINKING

Collegians, Wake Up!

Just a bit of plain-speaking to the young collegians (plain speaking may prick their conscience where homilies and sermons have so far failed) whose academic trends and behaviour inside and outside the college campus have come in for a measure of stringent criticism from their elders whose nostalgic feeling about the so-called good old college days when occasional jerks had little truculence may, at least, make the youngesters pause and think which way they are tending-whether, in their perfectly legitimate desire to stir up the so-called somnolent authorities in respect of their numerous complaints, grievances, demands etc., they are not following a suicidal policy.

It is admitted on all hands that the collegians have quite a number of grievances relating to teaching, adequate library facilities, hostel accommodation, financial help and examinations. Do they realise that the means adopted for the ends are the wrong things in the right place, gravely prejudicing the achievement of their cherished objective of getting a fair deal from the authorities concerned? What is the net result of their agitational strikes and violent demonstrations which appear to be a bastard growth of their legitimate will to impress upon the authorities the justness and urgency of their cause? Has it ever occured to them that their immaturity makes them a prey to the machinations of designing persons who are out to make capital out of their predicament? Ultimately teaching and consequent progress in curricular studies having been jeopardised fill their minds with a sort of nightmarish dream of a dismal failure in examinations and lead them to cling to desperate ways to get rid of the so-called nightmare by agitating for an arbitrary extension of dates of examinations, which only prejudice their chances of appearing at higher competitive examinations for provincial and All-India services. A thousand pities that, in pursuance of their normal desire to impress upon the authorities concerned the justness and urgency of their cause, they are seized with an abnormal mentality of going to an absurd length — ransacking college offices, damaging college property etc. Somehow or other, they have evidentally lost confidence in the authorities, and their exasperation, nay strong resentment, make them inordinately prone to indulge in too harmful excesses.

It seems that the overwhelming majority of the young collegians miserably fail to assert themselves in favour of the smooth and systematic working of the teaching and examination machinery against the dominant minority of the collegians whose source of strength is intriguing to a degree and who, to all intents and purposes, are following a dog-in-the-manger-policy which is manifest from their walking out of the examination hall on the most flimsy grounds and dragging in their trail bona fide examinees who fall easy victims to their bullying tactics (a cue from the opposition politicians?).

Let the inherent sanity of the general mass of the collegians (sanity is not a monopoly of the elders) make persistent attempts, with a firm will and in an honest and straightforward manner, to rouse the dormant good sense of the erratic collegians by cogent arguments and gentle persuasion applied in the right spirit and in the right atmosphere (the right spirit and the right atmosphere have to be created by a mutual understanding of each other's stand-point and modus operandi) for the restoration of the dignity and sanctity of the teaching and examination machinery. Much water has flown down the Ganges since the erratic collegians started their so-called suicidal activities. Will they seriously think of making a right about turn and cry halt to their present dogged pursuit of an one-track mentality of standing only on their rights and, while firm on their legitimate rights, realise also the duties and responsibilities o students who are the future citizens and builders o the nation. This is not over-simplifying the problems of the students but going to the base, which will resolve so many conflicts which are now bedeviling thtir relations with the authorities. With truce to the present perverse mentality of the errati collegians (their perfectly natural desire gets an unfortunate distortion, thanks to the intriguing circumstances in which they are willy nilly placed), the may get an opportunity, which they will not willingly let slip, to conjure up a clear vision of the bas that will make all the difference in their presen thoughtless, heedless ways of demanding their righ which so often end in disaster.

(Sudhir Kumar Ganguli)
Professor of English, Patna College an
Ranchi College (retired).
Arya Kumar Road, Patna-4, [BIHAR

WHAT HAPPENED AT BANGALORE?

Here is the harrowing tale of what happened at the eighth convocation of Bangalore University on Nov. 26 with Dr. Karan Singh as the chief guest. The usual pandemoneum created by the students (who are now Degree holders and post-graduate Degree holders was there as Dr. Karan Singh smilingly looked on. This was soon followed by booeing and catcalls as the Vice-Chancellor recited the *Tittiriya* poem from the Upanishads (in the form of offering respects to the teacher) because they could not tolerate the sentiments conveyed through the stanzas. It is all a matter of great shame on the part of the student audience for the scant respect they all showed to the chief guest of the day—the only one Union Minister who even today stands by the unparalled uniqueness of the Vedas (Vedanta or Upanishads) because according to the great German Philosopher Schopenhauer: In the whole world, there is no religion or philosophy so sublime and so elevating as the Vedanta (Upanishads) which is so often spoken of as the Universal Religion of the World:

In view of what is happening at almost every University Convocation because it has lost all its glamour among the fresh graduates, it is suggested that each University, soon after the publication of the results of the examinations, should arrange either to hand-over the Degrees in person or to post them to the persons concerned in future; and the amount allotted for the purpose utilized for the award of a few more scholarships.

D. Vaidyanathan,

HOW TO GET A TOP POSITION IN THE UNIVERSITY

What do you need to get a top position in university examinations of Bihar nowadays? My apologies to those who may have topped the lists or got high first class in recent years but I tend to believe that for these positions you need to have one of these qualifications: (a) you should be closely connected to some minister or a mighty politician or some powerful officer or one of the university overlords; (b) your guardians should have plenty of money to throw around; (c) in the case of some departments you should be . . . er, a charming girl not averse to playing the game.

There may of course be many other ways of doing it. There may even be cases in which only merit may get you to the top just as there may be some good and clean officers in high places. But that is only accidental nowadays, isn't it? There used to be a time when people set on doing well in life made a careful study of books like "Success—Why Not For You," and "Ways to Sure Success." By following the formulae some people even achieved some measure of success in life. But you would only be wasting your time and money on such books now. Qualities like hard work, perseverence, honesty, initiative etc. etc. could make you utterly frustrated and cynical. Incidentally, there is a big market for people who may decide to write these "Success books" anew. Among the qualities they would ask you to cultivate would be sycophancy, slyness, dishonesty, mediocrity and all the other antonyms of the favourite words in the outdated "Success books".

My advice to prospective examinees—and this is directed particularly to the post-graduate students of one department of Ranchi University—is to take the first opportunity of grabbing a seat in the private lodges of their professors. Never mind if it is a crowded dark hovel or if the room opens on a suppurating drain or if the *chowki* creaks and wobbles every time you move, never mind all these discomforts for they would stand you in good stead later. Just go on buying the milk that your professor's cows give without a murmer about the degree of its dilution or its high price, for where in the towns do people get milk as the cows gave it any way? What does it matter if you pay a little more per seer? Take it in the right spirit. Consider it an investment for you might get rich dividends. Go on drinking the milk and buying the eggs that the professor's hens lay. Keep on the right side of the lady of the house, go get the vegetables from the bazaar in the mornings, do a little baby-sitting for her while she goes to the *fillum* or visiting some friends. Do all this and you might well land up with a high first class. Always remember that studies are the least part of results.

At best your merit may be only remotely related to your results. Look at the fate of the Ranchi student who thought his merit was enough to get him a high place in the examinations. He had topped in B.A. (Hons.) and since it had been all due to his own merit he thought he could repeat the performance in the M.A. examinations also. He hadn't realised that accidents don't occur every time. Confident of his merit and the thoroughness of his preparations, he sat for the examinations and did well in all the papers. He got a second class. When the marks came, everybody was taken aback. In seven papers, he had marks ranging between 54 and 76 but in one paper, in which he thought he had done fairly well, he had been given just 19 marks. Where had he made the slip?

Perhaps there wasn't much mystery to it. Sometime before the exams, one Professor had prepared a set of questions and answers for every paper—keys to golden success—and had sold each set for Rs. 100. The examinee in question had also received oblique hints that he would do well to buy the sets, but foolish as he was he spurned the offer. If this Professor were to be the examiner of one paper, would it be any surprise if the swollen-headed boy got no more than 19 marks?

It would have been different if the boy was the ward, say, of the Vice-Chancellor. In that case, one has no doubt, he could have spurned the Professor's offer with impunity. But to be unprivileged and still depend entirely on such dubious quality like merit was the height of folly.

JANARDAN THAKUR
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CONTRIBUTIONS INVITED

For this and other columns. Please type them on one side of the Paper—double-spaced.

Please send them to the Editor.

Eradicating India's Poverty Throught Agriculture

Dr. M. S. Swaminathan

The history of agriculture provides an instructive insight into man's struggle over the ages to conquer hunger and to convert natural endowments into wealth meaningful to him in his day-to-day life. I was recently in certain parts of Iraq where agriculture had one of its early origins as well as a subsequent standstill. I was struck by the fact that the agriculture practised today in parts of that area might be *no different than what was practised probably 7,000* years ago. The soil which is generally light to medium heavy, is ploughed with a plough which hardly scratches the surface. The seeds of cereals like wheat or barley are then broadcast over the ploughed area and the farmer waits hopefully for rain for the seeds to get enough moisture for germination. Only one-half of the holding is sown in this was every year, the other half being given "rest". Under this method of cultivation if there is some initial rain and the seeds germinate and later there is a long gap before the next rain is received, the seedlings may die. The farmer may re-sow the crops once again in case he has seeds left. Due to low soil fertility the yields are poor.

Such low-cost, low-effort and low-intensity farming was man's response to a high risk, low energy and no artificial nutrient supply farming situation. Low-cost cultivation was necessary both because the farmers had no capital and because the risks involved were so high that a poor farmer could not afford to invest. The low effort was the result of the poor nutrition of both the farmer and his mule as well as the lack of adequate and suitable implements. The low intensity of farming was a necessity because there was no other method except keeping land fallow that could help to replenish the fertility of the soil. The Europeans had learnt over three centuries ago that by following a cereal crop with a legume there could be restoration of fertility but the ancient agricultural systems relied primarily on shifting cultivation or a crop-fallow rotation or the addition of organic wastes for the restoration of soil fertility.

ARTICLES

The view that the soil cannot bear a crop every year is still widely held among cultivatots in several parts of the developing world. The significance of the hypothesis of Karl Marx that the law of diminishing return of the soil has been rendered irrelevant by the discovery of fertilizers is yet to be fully understood and utilised. No wonder under such conditions of farming, the "gamble" element is high and food scarcity conditions are frequent.

When agriculture starts moving, with a greater inflow of in-puts, greater use of energy and higher intensity of farming, a whole set of new factors arise needing *attention* and appropriate solution. Unfortunately, farming is still generally regarded in our country as an occupation which requires mostly brawn and not brain, although Mahatama Gandhi mentioned over 40 years ago that the solution to the problems of rural India lay in effecting a marriage between intellect and labour. There are so many variables in the biologial and physical world which affect crop gryowth that generalizations and problems tions on the basis of a macro-analysis of problems are likely to be futile. Let me give you one example.

At the International Crops Research Institute for the Semi-Arid Tropics located in Hyderabad two rain gauges installed at a distance of about 1.5 kms. from each other recorded a difference of about 15% in the total rain received during this *kharif* season. The soils in this farm also within short distances belong to either the black or red soil type, each characterized by altogether different capacities for holding moisture. Thus, within short distances we see *four different soil moisture gradients*—relatively high rainfall area with high water holding capacity, relatively high rainfall area with a low water holding capacity and relatively low rainfall area with a low water-holding capacity. Each one of these areas will have to be treated differently from the point of view of tillage, choice of crops and methods of fertilizers application.

The time has come for us to stuly in depth the problems of integrated land use planning. We expect *from our agriculture not only more food and feed* but also more income and more opportunities of productive and remunerative employment. Mysore is fortunate in having enormous variations of soil and climate with the consequent cultivations of soil and climate with the consequent cultivation of a wide range of crops including some of the important plantation crops and forest rees. We have also opportunities for thriving dairy and fishery industries. Although there is no assured irrigation facilities, the opportunities for introducing a whole package of new dryland farming and water harvesting techniques to suit the agro-ecological and socio-economc conditions of each block, are great. The traditional farming systems are based largely on the home needs of the farmer and the compulsions of both the ecological circumstances and pest and disease problems. The ecology, however, is fast changing and we should become *vigilant to* both the new possibilities and dangers.

In addition to the Tungabhadra project in the northern part of Mysore, the Ghataprabha, Malaprabha and Upper Krishna Projects are under various stages of execution. The total area to be irrigated by these three projects is nearly 800,000 hectares and the command area will be distributed over part of Belgaum, Bijapur, Gulbarga and Dharwar districts. At present there is mostly rainfed agriculture in this region and that either a single crop of *rabi* or *kharif* is taken depending upon the soil condition. There are great opportunities for completely changing the farming scene of these areas provided several of the important research findings are adapted to the black and red soils of these regions. We have seen time and again in our country that when an unirrigated land becomes irrigated, there is great joy in the first few years. The joy is reflected in abuse of water. There is over-irrigation and drainage receives no attention, since before the irrigation facility was established, holding of water rather than allowing it to drain was the problem. It takes only a few years for soils to become saline or alkaline particularly if the original soils contain a fair amount of salt as black soils do and if there is un-controlled irrigation without drainage. This problem is now a serious one in the Chambal command area of Madhya Pradesh. In this State, the area under saline soils is increasing in the low lying regions of Bellary and Raichur, which are irrigated by Tungabhadra canals. Several causes, such as the obstruction of natural drainage, cultivation of undulating land causing erosion and silting of drains and cultivation of unsuitable crops are causing this salinity. It was heart-rending for me to see in southern and central Iraq large desert areas which had been brought under irrigation at great expense and with great expectations, now all having huge encrustations of salt on the surface. In red soil which are generally neutral in pH and low in soluble salt content probably there may not be the same problem of salt accumulation, although even here it would be advisable to introduce right from the beginning scientific water management practices.

Agricultural progress has not yet reached a stage in our country when it can move on its own momentum. We have to help it to grow. Let me cite an example. The work done on *Jowar* at the Dharwar campus under the All India Coordinated Sorghum Improvement Project of the I.C.A.R. has had a significant impact on yield, particularly in the Hubli-Harihar region and the drier areas of Bellary. If what has been achieved with the hybrid *jowar* CSH—1 in these regions, could be extended to the rest of the State, perhaps the *jowar* situation would not have caused any concern in spite of the unprecedented drought which the country has just experienced. CSH—1 yields in parts of Maharashtra and your State under rainfed conditions are of the order of 30 to 40 quintals per hectare even this year. When we compare this with the low yields generally obtained we should be ashamed for having not extended the available scientific input and information on a scale commensurate with the magnitude of the problems of rainfed agriculture. The problem is more of utilising available information rather than lack of information.

Nutrition is another area of very great importance. Some experts now believe that nutrition and education can be compared to the hard-ware and soft-ware components of technology. In other words, since nutrition in early childhood and the expression of the full genetic potential for brain development appear to be linked, subsequent education cannot undo the damage done to intellectual potential by malnutrition-induced retardation of brain development. Because of the compartmental nature of our education, the full implications of this linkage are not widely appreciated. For example, an agronomist who preaches the need for balanced fertilization to crops, may not realise that his children also require balanced feeding!

We need more research on diversified cropping systems, particularly on fruit and vegetables and animals and fishes. Mysore area had been famous in the past for draft animals, but not so much for milk production.

One of the great strengths of our agricultural research system today is the existence of national grid of co-operative experiments and trials through the 70 All India Coordinated Research Projects sponsored by the I.C.A.R. in agriculture, animal husbandry and fisheries. Agricultural research workers have shown how to function in a truly cooperative spirit without any interference on the funtional or administrative autonomy of the constituent units.

The most important feature of the agriculture of many developing countries is the high density of human and animal population per unit of arable land thereby making the efficient use of land a pre-requisite of economic progress.

Where water is available, multiple and relay cropping practices can be adopted thereby enabling the biological utilisation of sunlight throughout the Year. It is, however, necessary to do this in a manner that the long term productivity of the soil is not impaired in any way. Multiple cropping sequences involving rice for example need a considerable amount of research information, on tillage practices and plant pathological implications. A total view has to be taken on land use patterns for a given area in order to achieve an increase not only in the quantity and quality of food available but also in income and employment.

New varieties of grasses are available now which can be grown in coconut and arecanut gardens in order to enable the farmers to maintain cows for milk production. Similarly, in some areas it may be more profitable to depend some of the waterlogged fields and introduce pisciculture in the place of paddy grown now.

Research on mixed farming of several varieties of fishes carried out under an All India Coordinated Research Project has shown that over 2 tonnes of fish per hectare can be produced by growing different kind of crop consisting of surface, bottom and column feeders in the same pond in about six months.

Historically a rising standard of living has depended on the ability of agriculture to release manpower to other more industrial pursuits. The sooner we take to the path of integrated land use planning involving an appropriate admixture of field and garden land crops, forestry, animal husbandry and fisheries and the related agro-industries, the greater will be the possibilities of achieving the national goal of eradication of poverty.

RADIOCARBON DATING

THE WORK AT TATA INSTITUTE OF FUNDAMENTAL RESEARCH

The Tata Institute of Fundamental Research has operated a Radiocarbon Laboratory as a national facility for archaeological studies since 1961. The radiocarbon method of dating was developed in 1948 by Willard Frank Libby in the USA. He was awarded the Nobel Prize for Chemistry in 1960 for this important development.

The radiocarbon method is based on the fact that cosmic ray interactions in the earth's atmosphere produce neutrons which, when captured by nitrogen, result in the production of radiocarbon (C^{14}). These radiocarbon atoms quickly become part of atmospheric carbon dioxide. Since plants live off carbon dioxide: animals live off plants, etc., radiocarbon produced in the atmosphere becomes part of the molecules and materials in the *caabon cycle*. The incorporation of radiocarbon in organic artefacts such as wood, charcoal, bone etc. forms the basis of the radiocarbon dating method. The half-life of radiocarbon is 5,700 years. Thus because of this, the method allows dating of samples of age younger than 40,000 years.

500 Samples Dated

The radiocarbon method is accurate and yet simple in principle, but it requires the use of sophisticated techniques of nuclear physics. Until 1961, there was no radiocarbon laboratory in India; a few samples from Indian archaeological horizons were sent abroad for dating but the results usually became available after a long time. In view of this situation, and realising the importance of radiocarbon dating in the context of Indian archaeology, Dr. Bhabha decided to set up a radiocarbon laboratory at the TIFR as a national facility.

The laboratory was set up in 1961 and has since been operated by the Geophysics Research Group of the Institute which specialises in applications of diverse nuclear methods to a variety of problems in earth sciences and space geology. Approximately 500 archaeological samples have been dated in this laboratory since it was set up; and this precise chronological information has made a profound impact on Indian prehistoric archaeology. For the first time in Indian archaeology, extensive dates are available on the basis of a physical technique. In addition to archaeological programmes, radiocarbon studies have also been carried out at the TIFR to study large scale meridional mixing of air in the atmosphere and in the oceans, as well as to delineate time scales involved in the food chain in the oceans, including abyssal organisms.

To celebrate a decade of active work of the C^{14} laboratory, an International Symposium on "Radiocarbon and Indian Archaeology" was held at the Institute premises between March 7-11, 1972. The symposium was devoted to the discussion of a broad spectrum of archaeological problems concerned especially with the applications of C^{14} techniques. One complete session was devoted to the use of physical techniques for archaeological research. Specific problems were tackled in detail during the panel discussions.

Several papers on Pleistocene problems emphasized the need for using multi-disciplinary techniques to reconstruct the chronology, the climate and the ecology of this period. Some workers reported results obtained by them from radiometric assaying, pollen and faunal analyses, and sedimentologic and petrologic studies on Quaternary sediments.

A number of important papers reported on Protohistoric chronology. The impact of C^{14} dating was evaluated and the areas in which further efforts should be directed were pointed out. It was emphasised by several leading archaeologists that as a result of C^{14} dating, they had obtained a sound chronological framework for the Protohistoric period.

Reconstructing the Past

In the session on the Indus Script, various approaches for deciphering the seals and inscriptions were discussed. Some scholars have also used computer techniques for positional analysis of the symbols. The polemics was very stimulating indeed but no consensus could be arrived at.

Another session concerned itself with the various physical techniques used for archaeological research. Trace element analysis by neutron-activation for characterization of posheads was reported by scientists of the Bhabha Atomic Research Centre, which evoked keen interest. The importance of spectroscopic and metallographic analyses for studying ancient iron and copper technology was brought out by the archaeological chemists. Use of statistical methods in the study of artefacts, technical studies on ceramics, and errors involved in radiocarbon dating, were also reported. The possibility of using archaeological remains of hair for determining the dietary patterns of ancient peoples by using activation analysis excited the imagination of the participants very much.

The last session concerned itself with the synthesis of the archaeological data. It was emphasized that Indian archaeology must emerge from its "descriptive" phase and begin to interpret the data by reconstructing the past. The importance of making models on archaeological data and several approaches towards this end stimulated much heated discussion.

Impact of C^{14} Dating

In the various panels, detailed and concerted discussions were directed towards specific problems *e.g.* the Plio-Pleistocene boundary. Pluvial-Glacial correlation, the chronological gaps in protohistory, exactitude in archaeological terminology, improvements in excavation techniques etc.

The symposium enabled several scientists from different disciplines to interact with each other in working towards the common goal of resolving archaeological problems. The impact of C^{14} dating was highlighted by most of the speakers. The deliberations have provided important guidelines for planning the work of the TIFR's Radiocarbon Laboratory in these areas. Above all, the critical reviews of the state of research in various fields of prehistoric archaeology led to the defining of the outstanding problems in their proper perspective. The symposium emphasized the need to use multi-disciplinary approaches for the resolution of these problems.

—NUCLEAR INDIA

I.A.E.A.

Time was when scientific pundit used to say that the various applications of atomic energy were much too sophisticated and the infra-structure required for their effective utilization much too complex to justify their widespread use in less-developed countries. They should learn first to exploit more fully the available conventional techniques. As late as July 1968, the World Bank produced a report which positively discouraged developing countries from considering nuclear power for a long time to come. If such views had prevailed we should be facing a situation in which advances in nuclear science and technology and, in particular, the introduction of nuclear power, would widen further the wide gap which already exists between the developed and developing countries.

Powerful Incentive

Fortunately the view that has ultimately prevailed is that nuclear energy placed in the hands of mankind a new tool which made it possible to do very many things cheaper and better than could be achieved by conventional methods. Furthermore, the speed with which applications of modern science and technology spread to different parts of the globe has been increased as a result of the greatly increased speed in transport and communication. The time-interval between the introduction of new technology in the more advanced countries and their effective use in less-developed countries will, in future, be measured in terms of years rather than decades. Beside all this, the desire to derive advantage from this new technology is in itself a very powerful incentive towards the building-up of a scientific infra-structure in the less-progressive and custom-ridden atmosphere of a less-developed country.

The applications of nuclear science require usually an interdisciplinary approach. A dynamic scientific group built up under the impact of an atomic energy development programme soon establishes full collaboration with existing institutions in the country which carry out agricultural and medical research; the collaboration is fruitful, and tends to spur future activity.

The term 'nuclear technology' embraces scientific and technical knowledge, methods and engineering design and 'know-how' connected with the nuclear power industry, and with all the widespread applications of nuclear phenomena in the country at large. We have found that developing countries use nuclear technology on a modest scale initially with applications of radioisotopes; but sooner or later they manifest an interest in the whole range of nuclear technology on a time scale determined largely by their rate of approach to an electric grid system partly powered by nuclear plants. The most notable peaceful application of nuclear technology is in the generation of electric power and, unfortunately, it is here that progress so far has been remarkably slow.

The Introduction of Nuclear Power

The first industrial-sized nuclear power plants went into operation in 1956 and 1957. Installed nuclear capacity now stands at about 25,000 MW(e), and is expected to increase five-fold by 1975. It will probably pass the 320,000 MW(e) mark by 1980.

Nuclear power has become an accepted component of electric power utilities in many parts of the world; it is beginning to be treated as a 'conventional' method of producing electricity and is selected primarily on the basis of economic consideration.

An assessment by Shri Upendra Goswami, Deputy Director General, Department of Technical Assistance and Publications, IAEA, Vienna.

Impact on Developing Nations

But, while nuclear power is growing rapidly in advanced countries, it has had relatively little impact in developing countries. Of the rough total of 290 nuclear power plants in operation, under construction or firmly planned at the present time only 14, or less than 5 per cent of the total capacity, are located in 7 developing countries.

This is unfortunate, because for developing countries taken as a whole nuclear power has a number of inherent advantages:

- Many developing regions are deficient in conventional fossil fuel. This is especially true of South and East Asia, where more than half of the population of the world now lives. The relatively low fuel costs of nuclear power can represent for such *countries significant economies in the cost of imported* fuel (and therefore foreign exchange) over the lifetime of a plant. This economy could be larger if indigenous, commercially workable supplies of uranium could be developed, since the cost of uranium accounts for about 20 to 30 per cent of the total fuel costs for a nuclear power plan. It is believed that uranium in commercially-workable deposits, may be found in a broad spread of developing countries.
- The relatively small transport and storage costs of nuclear fuel compared with fossil fuel make it possible to locate nuclear power plants in areas where transport costs would rule out fossil-fuelled plants. This offers an opportunity to mitigate inequalities in the development of various regions within large developing countries. Even spent fuel from nuclear reactors, which requires heavily-shielded containers, is far more economically transported than the equivalent fossil fuel.
- In certain cases the adoption of this up-to-date and sophisticated method of power generation can stimulate and produce side-benefits in fields such as chemistry, metallurgy and electronics.
- The possibility of using a new source of energy can, in some cases, lead to a better bargaining position for the purchase of conventional fuels.

Among the problems that face developing countries in introducing nuclear power are those of organization, 'know-how' and infrastructure. But the biggest problem is financial — because of both the economic characteristics of nuclear as compared with conventionally — fuelled power plants and the general difficulty faced by developing countries in obtaining financing for capital-intensive projects. A 200 MW(e) nuclear power plant would cost between $70 million and $80 million, depending on the type of reactor employed.

Where to Strike the Balance?

The recent sharp increases in the price of fuel oil have important significance for the developing countries rely upon imported fuels. The prospect of spending increasingly large amounts of their scarce foreign exchange for oil imports is forcing them to consider the use of nuclear power. Further, in view of the higher fuel oil prices, the size of the competitive nuclear unit has decreased considerably under average conditions, to bring it down within the reach of smaller grids in developing countries. A 2,000 MW grid in a developing country could use a unit of 300 MW(e). Such a plant could be competitive with an oil-fuelled station using oil at 35 to 50 cents per million BTU ($14 to $20 a ton), depending upon the interest and fixed charge rates on the capital employed. Considering that fuel oil prices are likely to range from 40 to 60 cents per million BTU by the mid-70s, if not earlier, nuclear power could make economic sense for many coun-

> "......in almost all the advanced countries, the first commercial-sized nuclear power plants were not regarded as 'economic' propositions, and they were not required to satisfy or even approach strict economic criteria. The first and, in some cases, the first few plants were seen as ventures into a vital new branch of technology required by the national interest."
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Early Years

It should be noted that in almost all of the advanced countries the first commercial-sized nuclear power plants were not regarded as 'economic' propositions, and they were not required to satisfy or even approach strict economic criteria. The first and, in some cases, the first few plants were seen as ventures into a vital new branch of technology required by the national interest. All the early commercial power plants which are now working in the advanced countries, where capital is more freely available, were subsidized. Nevertheless, prima facie economic considerations will make nuclear power plants of large sizes currently being manufactured interesting to many developing countries only when their overall energy demands have increased considerably. It is expected that by 1980 another ten developing countries will be in a position, economically and technically, to install nuclear power plants. In some of the other developing countries, however, the availability of particularly cheap fossil fuel may continue to make nuclear power relatively less attractive.

Another factor which militates against the use of nuclear power in developing countries is the limited interest among major manufacturers in developing and marketing small and medium-sized reactors, of the sizes which are most suitable for smaller grids in developing countries. They are too preoccupied with domestic demands to devote attention to reducing the capital costs of smaller reactors through standardization, design simplification and multiplication. Savings of 15 to 20 per cent in cost per kilowatt of installed capacity are possible if the nuclear industry applies itself to these problems.

The IAEA believes that a large potential market for small and medium power reactors exists in developing countries. In order to explore this proposition, the IAEA convened a group of experts to discuss the problems of power reactors of interest to developing countries; upon the recommendations of this group, the Agency is now embarking upon a market survey of nuclear power plants which could be ordered in the developing countries in the next five to ten years. It is expected that this survey will be completed by early 1973, and that it will provide for industry the information needed for the development of standardized power reactors of proven design with reasonable capital costs, particularly for use in developing countries. This survey could also help to persuade the loaning agencies of the need and economic merit of nuclear power plants for developing countries, so that the necessary financing could be made available. The Agency is thus engaged in a major effort to bring the developing countries, nuclear industry and loaning organisations closer together, to help spread the potential benefits of nuclear power to its less developed member-States.

A Look to the Future

Closely allied to the introduction of nuclear power is the possible use of nuclear energy for converting sea-water into freshwater. For the very large desalination plants necessary to satisfy the water demands of the future, large quantities of low-cost energy will be required. For such projects nuclear energy may be economically attractive, since economies of scale favour particularly very large reactors. A nuclear power plant which can be used for the dual purpose of producing water and electric power is attractive in theory since, from a thermodynamic stand-point, effective use can be made of the available low-grade heat. By combining the two processes in one plant a larger nuclear reactor can be used — a reactor of a size whose cost per kilowatt is in a low range. Lack of markets for large quantities of electric power may delay the advent of nuclear desalination plants in developing countries. Nevertheless, it is important to bear this possibility in mind and to keep it under constant review; because the demand for potable and agricultural water is accelerating throughout the world and more than one third (37 per cent) of the land surface of the earth consists of warm, arid regions which belong, to a large extent, to developing countries.

Early Exploration for Uranium

The rapid growth of nuclear power provides the uranium mining industry, for the first time in its history, with a stable and promising commercial market on which reasonably firm plans for exploration and production can be based. The amount of low-cost uranium which should be found and proved before 1980 is of the order of 1 million short tons of U_3O_8. The proved low-cost ore reserves are now approximately 800,000 tons of U_3O_8, of which more than 90 per cent are in developed countries. It may reasonably be expected that a more substantial proportion of the reserve to be located in the future will be found in the developing countries.

The average time between the start of an exploration programme and full operation of a new mine may be six to ten years. Early exploration for uranium is therefore essential if a shortage of uranium in the late 1970s is to be avoided. The Agency has always encouraged developing countries in their efforts to locate economically workable deposits of uranium. As examples of such efforts the two UNDP Special Fund projects in Greece and in Pakistan, for which the Agency is executive agent, may be cited. If as a result of these efforts significant uranium deposits are located the developing country concerned could benefit from:

- the utilization of national uranium in national nuclear power stations, and
- the commercial export of the uranium.

Apart from providing an important energy source, nuclear technology has two other aspects which are relevant to the needs of developing countries. These are the use of ionizing radiations, and the use of radioactive isotopes. Ionizing radiation may be used in biology, food production and preservation, in industry and, in medicine, for therapeutic and diagnostic purposes; while radioisotopes have applications in many fields including biology, medicine, agriculture, hydrology and industry.

Food and agriculture are major fields in which nuclear technology can benefit the developing countries in both the short and long-term. Therefore, all possible aid in this connection should be extended to them. The utility of nuclear methods is evidenced by the millions of hectares of land on which high-yield radiation-induced-mutant crop varieties are already under cultivation.

Isotopes are used to study the up-take of fertilizers by plants as affected by the way they are introduced into the soil, their distribution, time of application and chemical composition. Insects can be studied by marking with radioisotopes; the so-called sterile insect release method for the control of insect pests is important since it is specific to predetermined species and minimizes the use of chemical insecticides.

Nuclear techniques find numerous applications in medicine and biology. Radioactive materials are used as tracers in medical research as well as in clinical diagnosis and investigation. They are also used as radiation sources in the radiation therapy of cancer and other diseases; and in public health applications.

In industry, large radiation sources have been installed for various purposes, chiefly for sterilization. The sources utilize gamma radiation and beams of fast electrons. Gamma sources are frequently employed in the radiography of welds and castings, where they have the advantage of small size, portability and independence of power supplies.

Radioisotopes have found great application in measuring and controlling physical parameters in industry; instruments for measuring thickness, level, density and moisture content are only a few examples. Radioactive tracers are used both for laboratory research and for investigations in industrial plants. They have the advantage of being detectable in very low concentrations and even through the walls of pipes or process vessels. Thus, investigations can be made without the expense of shutting down a plant.

Nuclear techniques have also been applied successfully in the search for petroleum, particularly in the exploration of bore holes. Radiosiotope gamma and neutron sources of various kinds, coupled with gamma and neutron detectors capable of operating at depths of several kilometres may be used. There is growing need for fresh water for drinking and agricultural purposes; often, new methods must be used to locate water sources, especially in arid areas. Radioisotopes are making a major contribution to the solution of this problem.

Paying the Bills

The implementation of the various projects, I have mentioned, required expenditures which vary widely in magnitude. Projects using small quantities of radioisotopes require funds not exceeding tens of thousands of dollars; a large project using large radiation sources would cost in the neighbourhood of a million dollars, the exploration and proving of economically exploitable uranium ore deposits might involve the spending of a few million dollars; mining and milling investment costs would be of the order of ten million dollars for a capacity of 500 short tons of U_3O_8 per year and construction of a nuclear power station of 200 MW(e) would cost over $70 million.

Bilateral programmes of assistance played a major role in the late 1950s and early 1960s in introducing nuclear technology in developing countries. In view of the tapering off of bilateral aid from certain sources, developing countries have had to turn to the IAEA in order to launch new programmes as well as to maintain the momentum of those started with bilateral help.

The Agency draws upon three main sources for its technical assistance: its 'regular' programme financed by voluntary contributions to its 'general fund', gifts by governments which are administered by the IAEA — for example, equipment, cost-free fellowships and cost-free services of experts — and UNDP

(Continued on Page 45)

INTERVIEW

The universal concern for the problems posed by the increasing pace of technological growth was once again demonstrated by a symposium on the future of cultural development held 7-11 April at Arc-et-Senans, France, under the sponsorship of the French Committee of the European Cultural Foundation and the Foundation for Cultural Development. Among the personalities taking part in the discussions were Professor Craig Sinclair and Alvin Toffler. Unesco Features Editor Pierrette Posmowski, who attended the symposium, talked to them.

Craig Sinclair on Limits to the MIT Model

Question: Professor Sinclair, you are working on a new five-year project on social and technical forecasting. How would you say it ties in with MIT's latest study, carried out for the Club of Rome and presented in their book "The Limits to Growth". And do you agree with their assessment?

Answer: The attempt to build a simulation model of world development with a computer which is what *The Limits to Growth* model is — is certainly ambitious. One has certain doubts, however, as to whether sufficient data were available at this stage to arrive at final answers. I believe that even the protagonists of the MIT study would admit that they are acting very much as catalysts and would welcome constructive criticism such as we hope to make.

You see, even with a model of the side they were able to produce, they were obliged to limit the data fed into the computer to five general parameters: accelerating industrialization, rapid population growth, widespread malnutrition, depletion of natural resources and the deteriorating environment. Thus, a general criticism I would make is that they have inevitably neglected some factors which we feel to be particularly pertinent.

Social reaction

A principal one is the idea of technological advance, particularly in those areas where relatively little work has been done — that is, in the methods of reducing pollution, of investing against pollution and socially controlling the applications of science and technology.

The other main factor which has been missed from the MIT study is — how shall I put it? — the response of people to increase knowledge about the consequences of the present rates of change, the rates of technical change particularly. One would assume that there will be a social reaction to the increasing awareness of the dangers that we are running and of the investments — the social costs — needed to protect us from these dangers.

At a technical level, I think that the authors of the MIT report would admit that their model was quickly produced and, therefore, may contain elements of uncertainty and error. We are hoping at Sussex, to use this very advanced piece of work as the basis for a slightly longer-term consideration of the problem, to compare its inputs with what has been previously available as forecasts of pollution, economic growth and population rise, and to test the MIT results against these. The authors of the report admit freely that they have worked with only about one per cent of the data they would like to have had and this permits one to view their preliminary results with some scepticism. It certainly seems to us on first examination that this model must inevitably forecast disaster at some point in time, since they have taken the benefits and the positive production of the technological system to be linear in growth, and the ills, the bad, and the social costs arising from this production, to be growing exponentially.

Q.: *By linear growth*, you mean that the *amount of increase* remains the same, remains constant in a given period — for instance, 20 new houses built in 1968, 20 in 1969, 20 in 1970 and so on. While *exponential growth* means that, though, the *rate of increase* remains constant in relation to the whole — 2% of new houses in 1968, 2% in 1969, 2% in 1970, etc. — the actual amount, the number of new houses, swells from year to year according to a regular progression: 20, say, in 1968, 40 in 1969, 80 in 1970, 160 in 1971. . .?

A.: Yes, that's the general idea, and because of this approach, the model is bound to arrive at a crisis situation sooner or later.

Paying the price of pollution control

Q.: So, given the fact that pollution and the technological overload — as you scientists would say — pose real problems, in most industrialized countries at least (for the situation must be very different in the developing world), the question still remains as to whether one must accept that the growth of pollution will rise faster than the rate of economic growth?

A.: This is by no means proved. And it is certainly our intention in the work we are doing at Sussex to investigate this aspect. It may well be that we have sufficient present knowledge to limit pollution to a greater degree than we currently attempt to do. We do not necessarily have to produce new knowledge or to do a great deal of research and development work in order to have some immediate, noticeable effect on the level of pollution. There is evidence that techniques already exists for controlling pollution, and it simply becomes a question of accustoming people to carry the expense of anti-pollution methods in the price of the products they wish to buy.

Turning to the developing countries, this is a very sensitive area, since there is a certain degree of scepticism in the Third World, where some view the industrialized countries' concern for pollution as a form of neocolonialism. An often expressed opinion in the developing countries is that their problems of over-population, under-nourishment, etc. can only yield to more technology and to more science, and they are willing, for the time being at least, to put up with the ills of a highly industrialized society in order to gain some of its benefits.

Q.: Is the world situation so critical, so near crisis, particularly with regard to, say, the using up of natural resources, that we must act immediately?

A.: Essentially, it's a question of timing. But, even if we were to act immediately, it must be the developed world that cuts back on consumption rather than attempt to slow up the rates of growth in the developing countries. This, as I mentioned, is very much a politically sensitive area and one of the possible points of contention at the coming Stockholm environment conference.

Choosing a technology

Q.: In planning for economic development and environmental protection then, one has to make a certain differentiation between the situation in the Third World and the highly developed economies of the industrialized countries in Europe and America, since, obviously, data from the developed countries would show that many of the costs of producing a clean environment are very large indeed. This points up the difficulties in the whole approach of using *world* models.

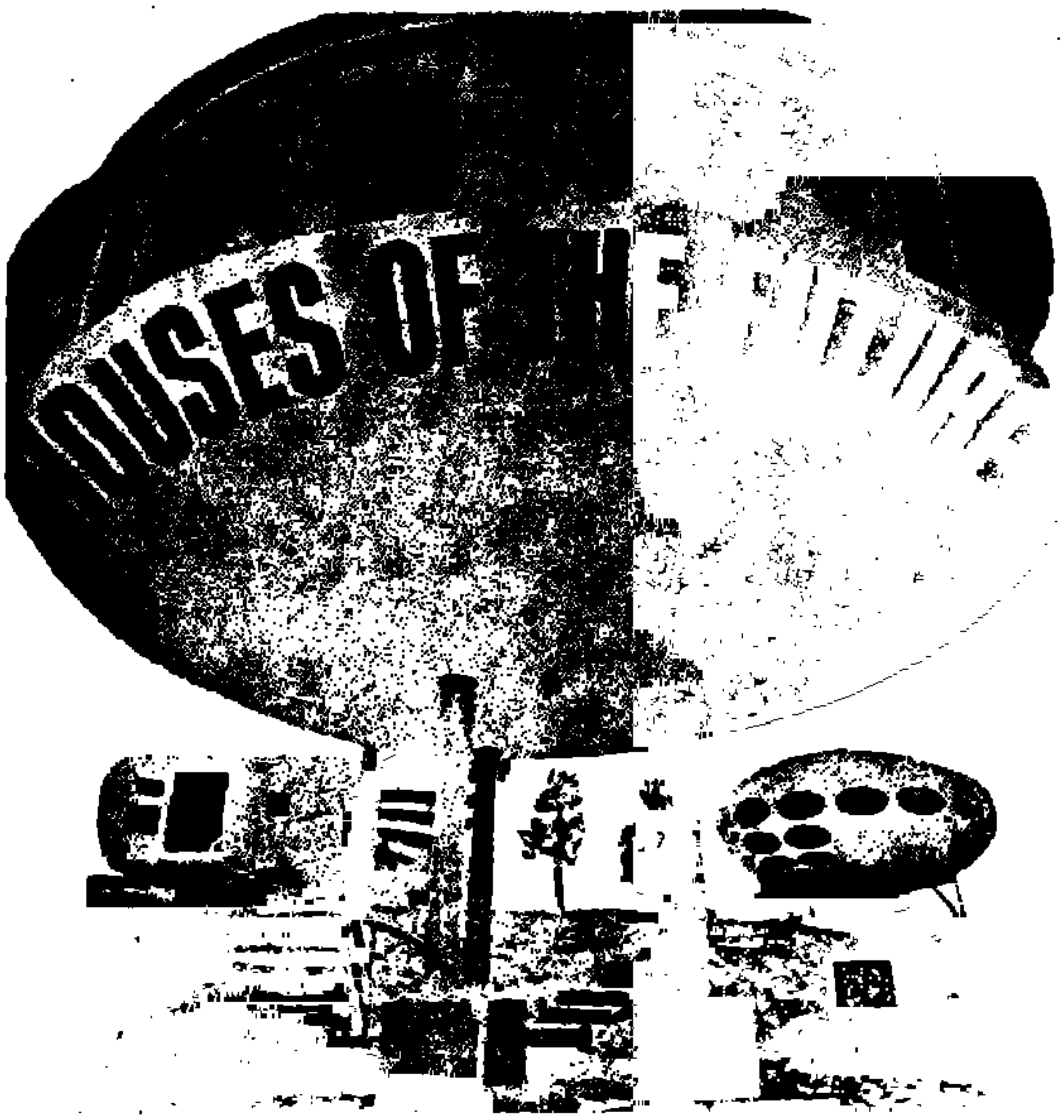
A.: Yes. To control the disruption of the environment, there are at least two major methods of working. The first is to accept the technology and then to apply, on top of its, protective measures. In simple terms, to put filters on discharges, to accept a process as it is and then to invest money and resources in reducing the possible environmental contaminants.

But with respect to the developing countries, one might posit the situation by starting as it were with a green field development and attempting to take into account environmental disruption at the level of choosing a technology. The costs of clean environment might then be smaller. In the fields of energy production, for example, I think it may be shown that the use of fossil fuels in existing technologies is damaging to the environment, whereas one more advanced technologies, like nuclear power, might be less so. In the developing countries, there are other solutions to the energy problem — solar power, tidal power, geothermal power, hydro-electricity — which, given sufficient investment in research and development, might be found to be less polluting than the simple application of existing technologies to developing countries. I think this need not necessarily be so. One mustn't, of course, under-estimate the difficulties of adapting technologies to be non-polluting; it's certainly not any easy task. But starting, as I said, fresh and applying greater social control to the use of science and technology, with greater investments for R&D against pollution, one might end with rather different predictions of the future than one gets today using data deriving from the developed world, particularly from the U.S. which has an enormously highly developed industry, employing large percentages of world resources for fairly small numbers of people.

Adapt to pollution?

Q.: One final question. Man is essentially an adaptable animal. Do you think he will end up by adapting to some forms of pollution?

A.: This is an extremely interesting question and it requires a rather involved answer. Certainly, air pollution — carbon monoxide, carbon dioxide, sulphur dioxide, dust particles in the air — or the pollution of water are physical insults to man in his use of air and water which he would be unlikely to be able to adapt to. It's unlikely that he'd ever adapt to very high levels of sulphur dioxide.



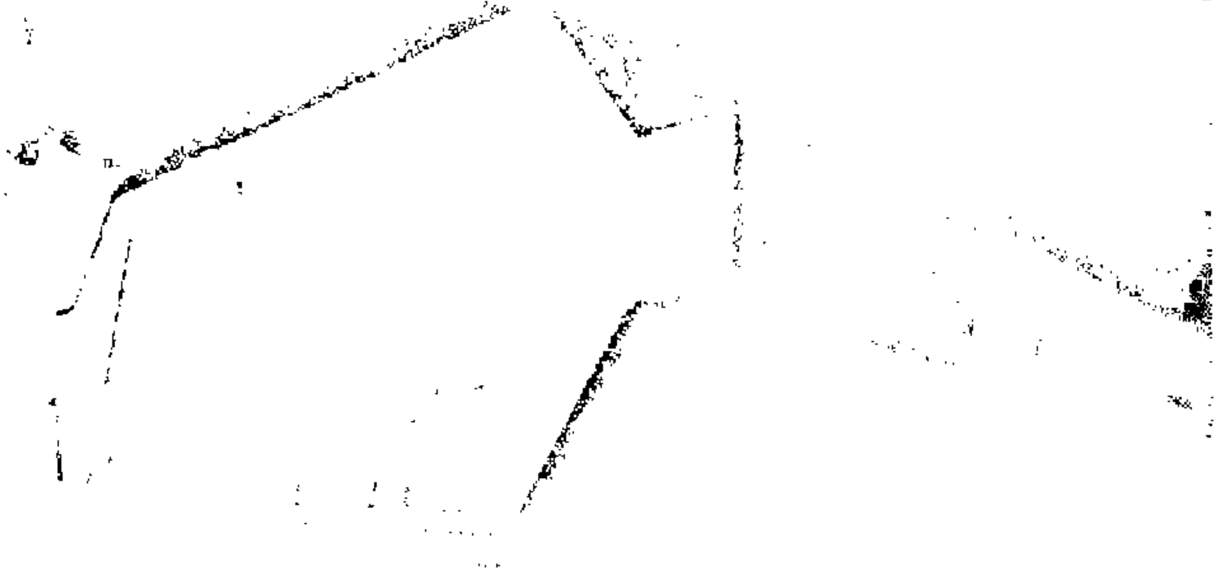
What will they look like, the houses of the future? Modern architects have been asking themselves this question for quite some time and have come up with bold, futuristic, and at times wierd, answers in the shape of houses far removed from present-day habitations. Apart from the styles of construction and visual shapes, the new houses also use new construction materials, synthetics and plastics and special glass. Building these houses is an adventure of the imagination blending with practical considerations and though they may look "out of the world," they are, in fact, highly practical and comfortable.

A small group of some 20 extremely modern and, in part, utopian-looking houses high up on the slopes overlooking the hilly Westphalian industrial town of Luedenscheid (Federal Republic of Germany) is known as the "World's Second International Plastic House Exhibition." The first such exhibition was opened at the same place in August 1971; and the third will be held there in the summer of 1973. In winter, when the exhibition area is closed to the public, some of the houses are lived in, so that additional experience is gained.

Last year, particularly avant-grade projects were in the foreground—houses made entirely of plastic whose stability and durability has not been put through much testing, small houses which seem more suitable for holidays and weekends. This year, on the other hand, larger houses suitable for permanent habitation are of central interest. At the same time, the trend is more towards building houses with walls, roofs and floors made of synthetic materials, while traditional materials are used for supporting the skeleton of the house.

Building with prefabricated parts, which has been developed in various countries over the past 25 years — in the Federal Republic particularly since 1960 — had a number of isolated forerunners in Germany as far back as the twenties. The Frankfurt architect and town planner Ernst May (1887-1970) used the architect and founder of the Bauhaus, which became famous throughout the world in the twenties as an art school with completely new ideas, began experimenting with standardised building elements for row houses in 1932.

(continued on page 30)



SIX DECADES OF RICE RESEARCH IN TAMIL NADU

—*Dr. G Rangaswami*

In Tamil Nadu, an area of 5.2 million hectares is under food crops. The population of Tamil Nadu which was 19.3 million in 1901 rose to 41.1 millions in 1971. During the year 1970-71, food crops alone occupied more than 70 per cent of this area.

The total quantity of food produced during the first five year plan period was 48 lakhs tonnes and it rose to 70 lakhs during 1970-71. This spectacular progress in food production was mainly due to increase in the area under rice and in the productivity per hectare of land.

The area under rice which was 1,996,000 hectares in 1955 rose to 2,686,200 hectares in 1970-71 and rice production from 25 lakh tonnes to 53 lakhs showing a 34.5 per cent increase in area and 111.6 per cent increase in production. In productivity per unit area, it rose from 1.25 to 1.97 tonnes per hectare representing an increase of 56.3 per cent in the yield per hectare.

Improvement of the rice crop through hybridisation was taken up in Tamil Nadu in the year 1917. Occurrence of the blast disease in a virulent from caused serious damage to the rice crop in many parts of the State. Breeding work on the evolution of strain resistant to the disease was started at the Aduthurai Station in 1927 and at Coimbatore in 1928. Identification of strain CO.4 as an useful donor of blast resistance proved to be a finding of great economic significance as it led to the release of the blast resistant strain CO.25 in 1949 which is still being grown in a large area in Tamil Nadu.

Use of Japonicas in Rice Improvement Project

The Indica—Japonica hybridisation project sponsored by Food and Agricultural Organization was started in 1952 in almost all the rice growing centres of Indian Union. The objective of the cross was to incorporate the nitrogen responsiveness of the japonicas into the Indian varieties by hybridisation. Selection work carried out at Agricultural Research Station, Aduthurai under this project led to the release of the variety ADT.27 from a cross between GEB.24 and Norin.8. Inadequate understanding of the characters associated with nitrogen responsiveness at that time, limited the outcome of the project and the programme was concluded without achieving outstanding results. Strain ADT.27 however proved to be popular among farmers of Thanjavur District because of its earliness and higher yield.

The possible coverage of the improved strains and introduction can be estimated at 20.5 lakhs of hectares. There is still an area of 6.5 lakhs of hectares for which improved strains are yet to be evolved. These are problem areas where rice is cultivated under adverse soil and seasonal conditions. High yielding strains of improved plant type with high degree of resistance to pests and diseases together with the ability to tolerate ill drained conditions will have to be evolved.

Significant contribution of tall indica varieties of Tamil Nadu towards development of widely adapted strains

The future programme of work

Besides the replacement of existing strains by improved varieties of yield potential, research is to be directed towards the development of varieties resistant to stem borers, gall midge, green hoppers, plant hoppers and leaf rollers among pests and blast, helminthosporiose and bacterial blight among diseases. With the availability of new sources of resistance, there is great scope for intensification of research towards resistance breeding. Most of the new varieties under spread do not withstand the ill drained conditions and the rainy weather that prevail in the coastal regions of Tamil Nadu particularly in the North East monsoon season. Research on varietal digerences in tolerance to adverse soil conditions has to be carried out to develop high yielding varieties with high degree of tolerance to adverse soil and seasonal conditions. Improvement of quality of grain with high lysein content without any reduction in the yield potential is also possible by careful selection both for yield and quality. The problem of developing high yielding varieties in the early and late duration maturity group should also receive greater attention. Besides the development of improved strains and formulating suitable agronomic practices for maximum production there is an urgent need to take up investigations on the scope of mechanisation in rice culture to make rice cultivation more economic and profitable to the farmer.

Continued from Page 40

in its Technical Assistance as well as Special Fund sectors. The aggregate programme from these three sources is of the order of magnitude of $5 million a year.

Of these three sources the most crucial is the first — namely the Agency's regular programme. This is used flexibly as 'seed money' to identify and initiate projects and to prepare the way for the larger and longer-lasting projects on which UNDP is increasing concentrating its resources.

The Agency's regular programme depends entirely upon voluntary contributions by governments to a target set each year by the General Conference. The target remained static at $2 million from 1962 to 1971, when it was raised to $2.5 million; and the target has now been set at $3 million, which would barely compensate for the cost increase which has taken place since 1962.

The overall picture, therefore, is one of increasing realization in the developing world of the importance of the role that atomic energy can play in promoting economic and scientific development. It seems likely that the demand for the help that the Agency can offer will grow rapidly during the coming years.

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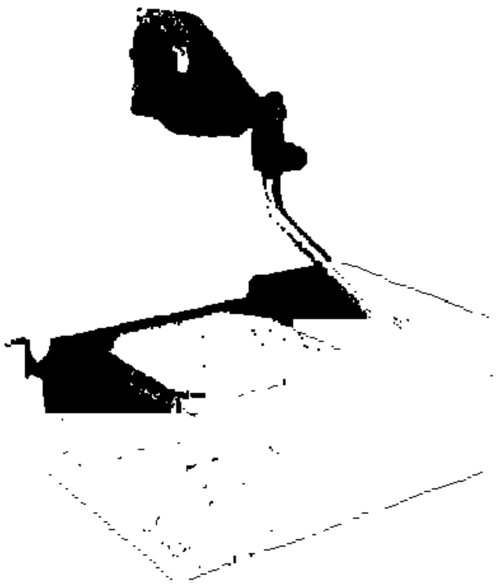

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PHYSICAL CHEMISTRY OF POLYMERS, A. Tager, pp. 558, Rs. 10.55 (Mir Publishers, Moscow).

Since 1963, when it was first published, Tager's *Physical Chemistry of Polymers* has been the most popular study aid on the subject in the Soviet Union. The second, completely revised edition appeared in 1968.

The second edition was again revised and brought up to date by the author and her co-authors expressly for the present English edition.

The book contains basic information on the physical chemistry of polymers, including the theories of phase states and of polymer solutions. The mechanical and electrical properties of polymers and problems of their plasticization are discussed. Sections are included on the gas permeability of polymers and on polymeric sorbents and ion exchangers. This book is meant primarily as a study aid for students studying chemistry at colleges and universities. It will also be of interest to research workers and engineers working in the various branches of chemical industry concerned with the synthesis and fabrication of polymer materials.

Professor Anna Aleksandrovna Tager, an adherent of Academician V. A. Kargin's school, received her Doctor's degree from the Karpov Physico-chemical Institute (Moscow) in 1956. She has been with the Urals State University of Sverdlovsk since 1948, where she has headed the Chair of Polymer Chemistry since 1958.

Her scientific interests are connected with the physical chemistry of polymers, more particularly with polymer solutions. A considerable number of papers written by her have appeared in various Soviet and other periodicals.

Besiding being the author of the textbook *Physica Chemistry of Polymers*, she has also written a monograph *Solutions of Macromolecular Compounds* which was published in 1951.

STRENGTH OF MATERIALS, R. Kinasoshvili, pp. 360, Rs. 5.75 (Mir Publishers, Moscow).

This book expounds in concise and clear language the essentials of the strength of materials. Many examples are given to help the student to grasp the theoretical materials and to acquire the necessary skill in solving practical problems. Each chapter is supplemented with questions, which are particularly useful for people studying the subject without an instructor.

The text is meant for students of secondary and higher technical schools. The book has been ten Russian editions during the last thirty odd years.

The textbook is divided into the following fourteen chapters: Introduction; Tension and Compression; Strength Design for Tension and Compression; Combined Stresses; Shear; Torsion; Static Moments, Centroids and Moments of Inertia of Plane Figures; Bending of a Straight Rod, Bending Moment and Shearing Force; Stresses in Bending and Design of Beams for Strength; The Elastic Curve of a Beam; Statistically Indeterminate Beams; Complex Resistance; Buckling; Strength Under Dynamic and Repeated Loading.

UNITS OF PHYSICAL QUANTITIES AND THEIR DIMENSIONS, L.A. Sena, pp. 296, Rs. 6.30 (Mir Publishers, Moscow).

Units of Physical Quantities and Their Dimensions is intended for university students and teachers of physics. It deals with the principles underlying the construction of systems of units, considers the International (SI) and the cgs systems in detail, and gives the relationship between the units of different systems and certain non-system units. There is also *an exposition of the fundamentals of the theory of* dimensions and its use for establishing the relationship between units and for solving problems by dimension analysis.

The Appendices contain a detailed discussion of logarithmic units and 59 tables for reference purposes, in addition to other valuable information..

Prof. Lev Sena, D.Sc. (Physics and Mathematics), of the Plekhanov Mining Institute, Leningrad, is a specialist in gas electronics. During many years of teaching and research work in Leningrad, he has published two monographs and many papers. In addition he has devoted much time to the study of the units of Physical Quantities and their evolution. His first work on this subject; The Units of Physical Quantities (in Russian), appeared in 1938 and was considered to be a standard work on the subject (going through four editions) until superseded by the present text. Units of Physical Quantities and Their Dimensions is the result of Prof. Sena's realization, as a teacher, of the urgent need of physicists of all branches, as well as of students and teachers, for such a book.

The textbook is divided into the following nine chapters; General Concepts on Systems of Basic and Derived Units; Conversion of Units and Dimension Formulas; Analysis of Dimensions; Thermal Units; Acoustic limits, electrical and maganetic units units of Radiation, selected Units of Atomic Physics.

ADJSTMENT AND TESTING OF RADIO EQUIPMENT, D. Osher, pp. 294, Rs. 5.10 (Mir Publishers, Moscow).

This is a textbook for vocational schools and it will also be of interest to radio amateurs. It is useful also as a reference book.

The textbook contains the following chapters: Adjusting and Testing Radioelectronic Equipment; Reliability of Radioelectronic Equipment and Methods of Ensuring , It; Fundamentals of Adjusting and Testing Technology; Checking Operating Gapacity; Adjusting and Testing Supply Sources; Adjusting and Testing Amplifiers; Adjusting and Testing Communication Radio Transmitters; Adjusting and Testing Pulse Transmitters; Adjusting and Testing Broadcast and Communication Receivers; Adjusting and Testing Amplifiers; Adjusting and Testing

LECTURES ON THE THEORY OF PROBABILITY, Yu. A Rozanov, pp. 114, Rs. 30.00 (Statistical Publishing Society, Calcutta).

This book is based on the lectures delivered by the author at the Moscow Institute of Physical Engineering and is intended for readers with a general college-level mathematical background.

A significant portion of the material is presented in the form of concrete examples and problems which play a greater role than would be expected in a book of this kind.

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Candidates are required to submit alongwith their applications a complete list (Seven copies of all the research paper published by them) mentioning the name of journals in which published and the year of publication, classified into 3 categories viz. (i) Published with senior authors (ii) Published with junior authors and (iii) Published independently. They are also required to send a copy of each of their research papers and substance of the reviews, if any, on their work published in important journals mentioning the name, year and issue of the journal. Appliations received after 30th jan. 1973 will not be entertained. Canvassing in any form will be a disqualification. Candidates will be called for interview at their own expense. Those candidates who have applied for the posts in response to our previous alvertisement No.1/72 and 2/72 (except for the post of Professor of Mathematics) need not apply again, but they may send on plain paper a statement of additional qualifications, if any, since acquired.

REGISTRAR

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Preference will be given to one who has a good background of Psychology and also has taken his M.B.A. or some other equivalent degree. Possession of some business experience, consultancy experience, or experience of case writing or research project will be considered as an additional qualification.

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Eight copies of the application should be submitted on the prescribed form, which can be had from the undersigned on payment of Re. 1/- in cash or by Postal Order with a self-addressed envelope of 23 cm x 13 cm. size, duly stamped with Re. 0.35 paise. The last date for receipt of application is 22-1-1973.

SURAT. G. A. DESAI
Dt. 23-12-1972. REGISTRAR.

UNIVERSITY OF SAUGAR
ADVERTISEMENT NO. R/

Applications on the prescribed form (obtainable from the undersigned on requisition) accompanied by a self-addressed envelope and a postal order of Rs. 5.00 in each case are invited for the following posts in the 'Centre for Research in Social Anthropology and Sociology' in the Department of Anthropology and Sociology so as to reach the undersigned by 31st January 1973:

A. (i) One Professorship in the salary scale of Rs. 1100-50-1300-60-1600.

(ii) Two Readerships in the salary scale of Rs. 700-50-1250.

Qualifications for Professorship:

The candidates must have:

(i) A Doctor's degree and/or high academic attainments with wide recognition for scholarship and original contribution to the subject.

(ii) Published works to their credit.

(iii) Extensive experience of conducting and guiding research.

(iv) At least seven to ten years post-graduate teaching and research experience or ten years experience of advance research in the field of Social Anthropology.

(v) A good working knowledge of Hindi, both written and spoken.

Specialisation:

Kinship and Family or Social Stratification or Political Anthropology.

Qualifications for Readership:

(i) A first or second class Master's degree or its equivalent.

(ii) A Ph.D. or higher research degree or published work of merit or experience of having successfully guided research work leading to a research degree.

(iii) At least five to seven years experience of teaching post-graduate classes and research or seven years experience of advanced research in the field of Social Anthropology.

(iv) A good working knowledge of Hindi, both written and spoken.

Specialisation:

Kinship and Family or Social Stratification or Social change or Applied Anthropology or Educational Sociology.

The posts carry the benefits of D.A. and P.F. according to University rules and are, in the first instance, for a period upto 31-3-1977 under the U.G.C.'s programme of "Special Assistance to Selected Departments" but are likely to continue thereafter also.

B. (i) One Senior Research Fellowship @ Rs. 500.00 per month fixed.

Qualifications: M.A. First Class in Social Anthropology/Sociology with sufficient research experience, preferably a Ph.D. degree.

(ii) Two Junior Research Fellowships each @ Rs. 300.00 P.M. fixed.

Qualifications: M.A. First class or Second class in Social Anthropology or Sociology with some research experience.

The duration of these Fellowships is two years but may be extended by one year more.

(Col. H. S. CHANDELE)
REGISTRAR
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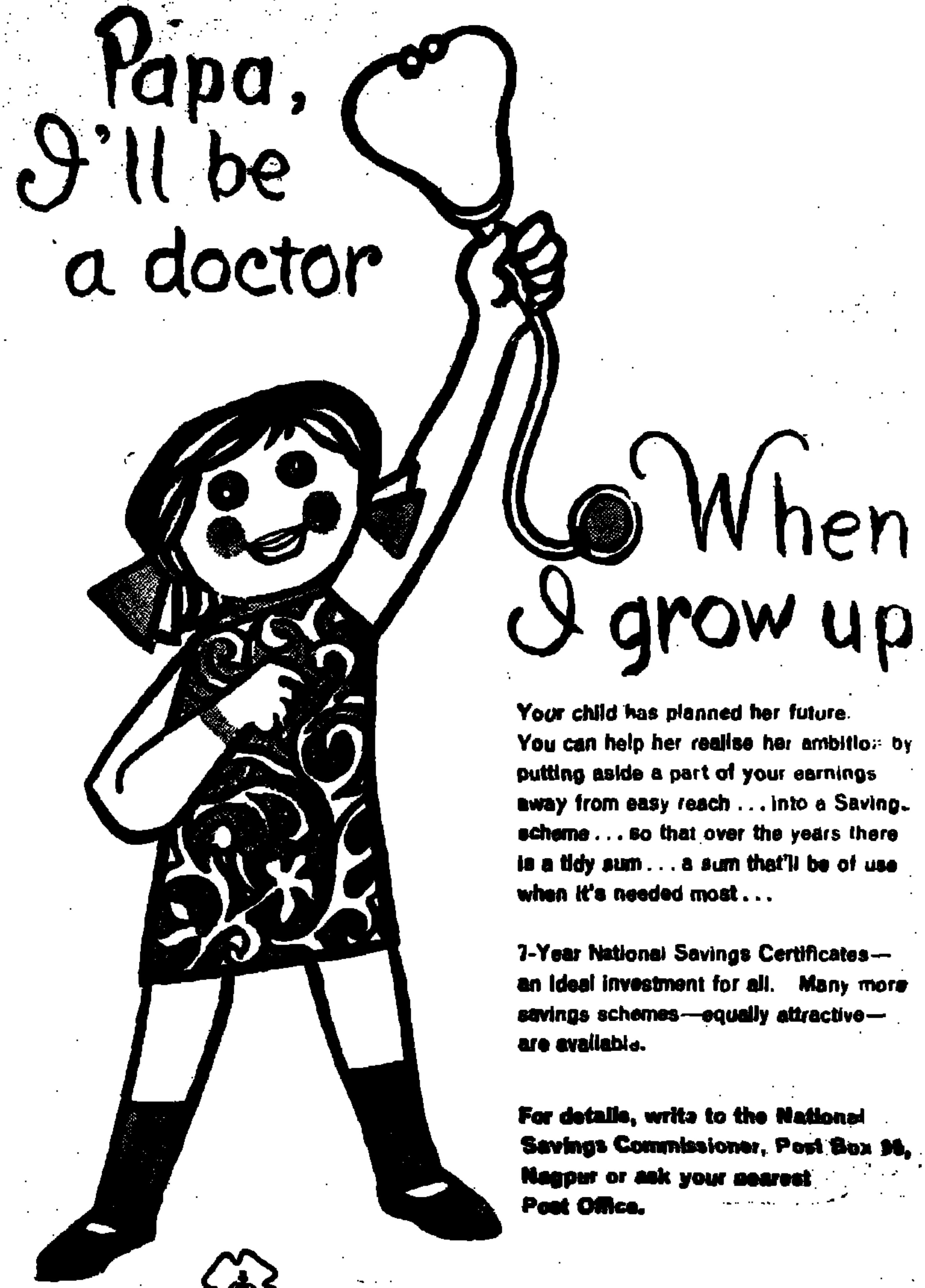
BANARAS HINDU UNIVERSITY

Addendum to Item 11 of Advertisement No. 32/1972-73

"There are two posts of Professor of Education. Last date for receipt of application is 10th January, 1973".

REGISTRAR



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UNIVERSITY NEWS

ONTHLY CHRONICLE OF HIGHER EDUCATION AND RESEARCH FEBRUARY 1973

Diwan, Vice-Chancellor, S.N.D.T. Women's University welcoming the Chancellor, Mr Ali Yavar Jung to Centenary Celeberations of Sir Vithaldas Thackers

AMERICA, ENGLAND, EUROPE, THE MIDDLE
EAST, INDIA, THE FAR EAST, EAST AFRICA,
THE USSR, AUSTRALIA AND BACK AGAIN!

AIR-INDIA

UNIVERSITY NEWS

Published every month by the Inter-University Board of India & Ceylon

Vol. XI **No. 2**

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Opinions expressed in the articles & reviews are individual and do not necessarily reflect the policies of the Board.

Editor: Anjni Kumar

The Wrong Response

The meaning of the Uttar Pradesh Universities Bill 1972 now before the U.P. Assembly is just this that university autonomy, which so to speak, died in 1947 is now being given a ceremonial burial. What the U.P. Government now wants to accomplish is something like this. The whole concept should be so hedged and circumscribed that for all practical purposes the control should vest with the Government but the formal structure of a university as an institution should stand unimpaired.

This is not particularly honest, to say the least. If a question is asked about something in a university the Minister gets up and takes shelter behind the plea that the university is an autonomous body and he therefore is not in a position to say anything about what happens there. This is the formal position. In actual fact there is hardly anything in our public life, including the universities, which is beyond the reach of the Government. Would it not be more honest to say that a university is a Government run department and the Government is as much answerable for what happens in a university as it is in respect of any other department.

Some of the provisions in this proposed Bill are very revealing. For instance, every U.P. university would have a Finance Officer who would be appointed by the State Government. He shall have such powers as would make him virtually independent of the Vice-Chancellor and indeed more attuned to the State Government. While one has every sympathy with the desire of the State Government to ensure that funds are not wasted and there is due husbanding of resources, the mode chosen for the purpose would make a mockery of university autonomy as also of the status of the Vice-Chancellor in the university community. In fact one of the principal thrusts of this proposed Bill is to weaken the position of the Vice-Chancellor. No university in the world was ever built up without dynamic and forward-looking leadership which is a way of saying that without the leadership of a Vice-Chancellor a university cannot forge ahead. If the only inference that the U.P. Government can draw from some of the failings of Vice-Chancellors whom the Government itself appointed, the universities would, before long, further lapse into that kind of stagnation from which it is intended to rescue them.

To put it plainly, the U.P. Government has only two choices. Either it makes universities really autonomous or it takes them over and runs them as Government departments. The kind of structure which is now sought to be given to them would make neither for efficiency nor for integrity, for the simple reason that both these qualities are conspicuous by their absence in respect of the State Government itself.

AMRIK SINGH

An Exemplary University Union

V. V. Mony

The youth are the same everywhere. In Delhi they hijack buses. In West Bengal they resort to stabbing. In many other parts of India also they are on the rampage. Assaulting officers of the university administration and brow-beating them through collective strength have become their *'modus operandi'*. Some universities have been closed sine die when violence has become a regular feature on their campuses. The gravity of the situation is obvious from the seriousness with which the Lok Sabha discussed this problem recently. The number of instances of student violence given out in Parliament points to the tragic trends of violence sweeping through our campuses.

Perhaps a silver lining to these clouds is noticeable in Kerala, where students, though a potent force in trouble making, are also more actively engaged in constructive activities. The efficient and purposeful way in which the Kerala University Union is functioning is ample proof of this.

The Kerala University Union was revived in 1969 after it went into hybernation for about five years from 1964. The reconstituted union spread its activities to all affiliated colleges under the University, enrolling every student into the University Union. The new Union is intended to promote the corporate social and cultural life of the students. Particular emphasis is given to development of character, discipline, efficiency, knowledge, democratic outlook and a spirit of service among students. The University Union also strives to give their members training in leadership. That the Kerala University Union has lived up to the expectations of all is beyond doubt. The Kerala University Union has been organising from its inception youth festivals, inter-varsity camps, merit evenings, all-India tours, education seminars and similar other useful functions.

"MERIT EVENINGS"

One of the most purposeful activities of the Union is the organisation of 'Merit Evenings'. Each year the Union honours the first rank holders of various examinations conducted by the Kerala University. So far 222 first rank holders were given cash awards and merit certificates by the Union. Apart from serving as an incentive to the student community this also gives a fillip to their morale and intellectual development.

A novel programme organised by the Union was the celebration of an Education Week. This points to the fact that students have taken the initiative to think seriously about improving the system of education. Reforming university education has been a serious point of discussion at various levels in India. The Inter-University Board of India and Ceylon and other expert bodies have been pondering for years how to relate education to the present needs of the community, change the content of it in the context of the changes in technology. Many students seek admission to colleges without clear aims and many of them fail to achieve them. The 'Education Week' focussed attention on these problems and was useful in the sense that it gave an outlet to the clientele of the system to think of the system itself.

The University Union also organised an all-India seminar on student participation in university administration. Pandits in education have hit on this idea as the only remedy for the deteriorating conditions in our campuses. Student and teacher delegates from several universities participated in this seminar in which eminent educationists and representatives from the University Grants Commission presented papers. These papers were on topics of contemporary interest in the field of education. Particular mention may be made of two papers—Participation of students in university administration and participation of students in academic bodies of the University.

The seminar passed certain resolutions of importance. It demanded among other things student representation on the governing bodies and managing bodies of colleges, formation of student courts in all colleges to deal with matters of discipline, formation of admission boards with student representatives to control and guide admissions and appointments, representation on all administrative bodies like the Senate, the Syndicate, Board of Studies, faculties and academic councils of the university.

Student participation in the administration of the university is a new idea, now being widely endorsed by governments and academicians as an answer to student unrest. The theory behind this is that power will make them more responsible. Now the Union Education Ministry has accepted the Gajendragadkar Committee's proposals on student participation in university administration. The Kerala University has been a forerunner in this respect by having three representatives from the student community on its Senate. Their performance in the Senate justifies their demand as these three representatives have been very ably participating in the deliberatons of the Senate. The maturity with which some of them see academic problems is commendable. Now universities in Bihar, Rajasthan and Bombay, besides the universities in Kerala, have student-members on their Senates.

Students can certainly contribute to the improvement of the quality of teaching and no doubt they are the best judges of the class room performance of a teacher. Students believe teachers do not feel they have any obligation to deliver the goods. They would rather grow up as the economic men of Adam Smith. Consequently the class rooms are dull and staff rooms dissipate only gossip and politics. The other side of the picture should also not be neglected. A teacher however enthusiastic and academic minded he may be, does not get the atmosphere to bring out his best in the classroom. He sees dull faces indiscipline and often he is asked to give them readymade essays that would only serve the purpose of examinations. He has also to make up the lost days due to frequent closure of colleges due to agitations, and also cover the syllabus at least nominaly. Further many colleges are hot-beds of favouritism and nepotism where the hard working scholarly teacher hardly gets any encouragement from the authorities. Many highbrows in the academic field prefer time-servers of pronounced subservience to men of competence and this has demoralised even those teachers who want to do some serious academic work. Student participation in academic administration in this context would not only help improve the standards of the educators but also inculcate among the students a sense of participation in the process of education. It must be noted in this respect that the Gajendragadkar Commission does not favour inclusion of students on the executive and academic councils.

An education seminar on 'Examination Reforms' was one of the highlights of the working of the union in 1972. As far back as in 1948 Dr. Radhakrishnan as head of an Education Commission observed: 'Examinations as they have been functioning have been recognised as one of the worst features of Indian Education'. Nothing has been done till now to redeem this system which continues with its "Answer any five questions all questions carry equal marks" feature since the beginning of university education in India. An answer to this decadent and deteriorating system was sought by the seminar.

Yet another feather in the cap of the Kerala University Union is the conduct of a camp involving nearly 50 budding literary persons. The camp called 'Young Writers Camp' was a major break-through in creative work undertaken by the Union. Following it they have successfully organised a colourful all-India Inter-University Youth Festival at Trivandrum drawing 300 students from universities all over the country.

All these only highlight a few of the activities of the Kerala University Union. The actual impact of its work on the student community is immeasurable. It may also be mentioned that while in several other universities, vice-chancellors have become the target of attack by students, in Kerala University, there is a spirit of cordiality and understanding between the vice-chancellor and the students. The Kerala University Union has proved that given proper leadership and encouragement the immense force of youth power can be channelled into productive and purposeful activities.

(Courtesy 'The Hindu')

DICTIONARIES IN EXAMINATION HALL

Israel high school students will have an easier time writing examinations from now on. The board of education has ruled that they can take dictionaries into the examination room.

Students will also be permitted to consult the Bible, mathematics or history textbooks during final graduation examinations.

The change was to help shift the emphasis from learning by memory of learning to think and use information sources, said an Education Ministry spokesman. The books will help students who know enough to make use of them, he said.

Prof. Nurul Hasan Urges Change In Educational Planning

Prof. Nurul Hasan, Union Minister for Education while delivering the convocation address at Mysore University urged for adoption of a programme to regulate expansion of higher education in a planned manner so that products of university system could be absorbed in the economy. He said that a major effort was needed to adopt ten plus two plus three pattern of education and to vocationalise the higher secondary stage. He suggested that some limitations be placed on the number of seats available in institutions of higher learning in view of the lack of resources and necessity for maintaining adequate standards. But this would imply a change of policy towards the private sector and assumption of a larger initiative by the States in the establishment of new institutions. In order that these measures did not adversely affect the interest of under-developed or underprivileged sections, it would be necessary to reserve seats for them and to provide ample scholarships and freeships. He also emphasised the necessity of organizing part-time education of self-study in the sphere of higher education to ensure that even the weakest section of the population got the full advantage.

He, however, stressed that there should be one national open university having jurisdiction over the entire country and it should be supplemented by development of a programme of correspondence courses in at least one university in every State. He also desired that facilities available in colleges and secondary schools should be made available to part-time students.

Prof. Hasan remarked that the hallmark of higher educaton was liberal mind which abhorred narrow parochial trends and it was only a liberal mind developed by higher education that could help to create a secular, democratic and socialistic society which was our national objective.

Referring to the difficulties facing the universities, Prof. Hasan thought that the internal problems could be solved by the combined effort of the teachers and the students themselves. But the external difficulties could not be solved easily unless society as a whole and its leadership of all categories recognised the significance of higher education to national development, learn to exercise restraint and create that atmosphere and those necessary conditions which alone could help university system to function satisfactorily.

DROUGHT HITS STUDENTS IN MAHARASHTRA

A survey of 683 backward class students of pre-degree class of Milind College of Arts was conducted by Principal Mr. M. B. Chitnis, former Registrar of Marathwada University. The survey revealed interesting results. About 43 per cent familes in the drought affected areas are consuming just half of the normal quantum daily, while the remainng 57 per cent are fortunate to get only three fourth of their food requirement these days. The spiralling prices of essential commodities and the drought conditions have made their lives miserable. At many villages fair price shops have been opened but the supplies are inadequate and irregular.

The survey shows that all the backward class students of the college were badly affected by scarcity and interim relief works are in progress at their villages. Some of the students have been obliged to sell their belongings or had to mortgage their goods to keep them going. More than 410 students have been directed by their parents to leave colleges and work for their livelihood at other places. However, the main relief work is metal-breaking. Though every effort is being made to hold the classes in the fields and elsewhere where the students are engaged in doing social work for the community, the drought condition in these areas have seriously hampered the educational activities.

FIFTH UNIVERSITY FOR ANDHRA PRADESH

The Jawaharlal Nehru Technological University started functioning in October 1972. Mr. T. R. Doss has been appointed the Vice-Chancellor. It has at present five constituent colleges: The Regional Engineering College, Warangal; Engineering Colleges at Anantapur and Kokinida; the Nagarjuna Engineering College and the Government College of Architecture, Hyderabad previously affiliated to Osmania University. The five constituent colleges now have strength of 5,600 students and 90 staff members.

The headquarter of the university which is the first of its kind in the country would be shifted to Warangal shortly.

SIR VITHALDAS THACKERSEY CENTENARY

S.N.D.T. Women's University recently celebrated Sir Vithaldas Thackersey Birth Centenary. Sir Thackersey was not only an industrialist of repute of his time but also a great social worker. It was his large hearted support to the efforts of Dr. D.K. Karve and other dedicated workers that led to the progress of the university. He was the principal donor of the Women University which is named after his mother. He gave a magnificent donation of Rs. 15 lakhs for this purpose in 1920. This was incidentally the largest single donation given by him.

On the occasion of the Centenary Celebrations held recently in Bombay, Mrs. Sharda Divan, Vice-Chancellor of the University has made the following announcements:

1. To commemorate the Centenary, the university will construct an auditorium at a cost of Rs. 24 lakhs at Juhu, which will be named as Sir Vithaldas Satabdi Subhagraha. The Thackersey Trusts have very generously given a donation of Rs. 15 lakhs for this purpose.
2. The Hansraj Pragji Thackersey Education Fund has agreed to give a donation of Rs. 5 lakhs for starting a science college at Sir Vithaldas Vidyavihar (Juhu Campus).
3. The construction work of Women's Polytechnic is expected to start very soon and a Department of Costume Design and Dressmaking will be set up in the Polytechnic. The Hansraj Pragji Thackersey Education Fund has also agreed to give a donation of Rs. 1.50 lakhs for this department.
4. A Department of Medical Technology would be added soon to the Polytechnic. For this purpose, Sir Purshottumdas Thakordas and Bai Divaliben Charity Trust has agreed to give a donation of Rs. 4 lakhs for this department.

With the help of these donations, university will be able to fulfil its aim to provide useful courses suited to women and to meet the changing needs of their education.

AGRICULTURAL GEOLOGY AT VIKRAM

The different branches of geology having close relation with the agricultural science are grouped together under the title, 'Agricultural Geology'. This subject is introduced as a course of study and research in the School of Studies in Geology, Vikram University, Ujjain, from the academic session 1972-73. The post-graduates in geology are eligible for admission to this course, which is of about a year's duration leading to the award of M.Phil degree by the University.

The objective in starting this new course is aimed at the utilization of the geological data in the field of agriculture on a wide scale than it is being presently used. Agriculture is one of the means of exploitation of the resources of the land, and in planning for the use of the later, an integrated approach of the knowledge of the various subjects concerned would yield beneficial results. Among such subjects geology plays a vital role as it is a science of the earth and its resources including soil and water. If the geologist is given special training in geomorphology, pedology, hydrology, environmental ecology etc; which have a direct bearing on agriculture, his contribution will be much more significant. Their economic value could be realised in due course time.

The large scale plans for the development of agriculture envisaged in our country require the co-ordinated efforts of persons of different disciplines and integrated approach for their successful implementation. It is for this cause trained candidates are immediately needed and the course will partly fulfil the requirements. The Agricultural Geologists will be in a better position to serve in the various schemes requiring expertise advice on matters such as surface and sub-surface water management, survey of natural resources, measures for the control of soil erosion, assessment of the land potentialities for intensive irrigation for advancing loans to the farmers by the banks and other multipurpose schemes related to agriculture.

The proposed course is only a modest beginning but to achieve a tremendous task. Its fulfilment in the true spirit demands from the candidates not only knowledge, enthusiasm and painstaking efforts, but also missionary zeal to serve for betterment in the living conditions of the farming community, during the course of training and later in their profession.

DEANS FROM U.S. VARSITIES VISIT INDIA

A group of Deans headed by Mr. John Linnel from leading American Universities recently visited India. They attended a Seminar of the Deans, which was organized under the auspices of the Experiment in International Living in Madras. The participants were given the first hand opportunity to know the customs and manners of Indian families which made them understand the people of India and their culture in a better way. A similar group is expected to visit different parts of Europe and United States this year and an intra-India programme would be organized shortly.

Ludhiana Workshop On Household Equipment

A national seminar on household equipment, the first of its kind in India was organized at the Punjab Agricultural University recently. About fifty delegates belonging to the disciplines of home management, electrical engineering, psychology, and other specialists participated in its deliberations. Dr. M. S. Randhawa, Vice-Chancellor of the university briefly outlined the history of various items of household equipment and linked it with the scientific advance of man through the ages. He pointed out that stainless steel which is easy to clean and maintain is, however, not an even conductor of heat. He, therefore, suggested that aluminium utensils made of heavy gauge would be more suitable as compared to ones made of thinner gauge like brass and stainless steel. Dr.Randhawa emphasised that the development of a piece of equipment and manufacturing it to the desired standard was a highly technical work which involved close collaboration among the scientists of various disciplines.

Dr. Sukhdev Singh, Director of Research announced that project to develop cheap fuel out of wheat and paddy straw had been started in University's College of Agricultural Engineering. In view of the fuel becoming more expensive, he advocated the use of pressure cookers and other modern household equipment.

OSMANIA ALLOWS PRIVATE B.A., B.COM.

After a prolonged discussion the Senate of Osmania University agreed in principle to the representation of students in the various bodies. It was felt that effective and meaningful student-teacher relationship was essential for achieving harmony in the university and the students should be associated with the university administration. By another resolution the Academic Council of the university decided in principle to allow the students to appear privately for B.A., B.Com. examinations. Until now this facility was confined only to teacher candidates and women. Decision was also taken to institute a Department of Social Work in the Faculty of Social Sciences. It was also decided to create a new College of Fine Arts, with Departments like Theatre Arts, Music and Dance, Painting and Sculpture, and Photography. These courses could now be offered for B.A. degree with suitable combinations.

WOMAN PRESIDENT FOR SCIENCE CONGRESS

Prof. (Mrs.) Asima Chatterjee, Head of the Department of Chemistry and Dean of the Faculty of Science, University Colleges of Science and Technology, Calcutta, has been elected General President of the Indian Science Congress Association for 1974-75.

Dr. S. Bhagavantam announced that Prof. Asima Chatterjee would be the first woman General President of the association.

The 61st session of the Science Congress would be held at Aligarh, under the auspices of the Aligarh Muslim University.

Dr. S. Sircar, Director of the Bose Institute, Calcutta, has been elected General Secretary (Headquarters) of the Association for three years beginning 1973-74.

RESPONSE TO FAMINE—
An Educational Endeavour

Plamthodathil S. Jacob

Year after year, as a nation we have been facing several acute human problems. Whether these were products of man made or natural calamities or not, the result has been the national concern for peace and relief for the suffering millions. The question arises whether it is posible to try to relate our educational endeavours to these social problems. Since we are all in midst of it, should we not try to involve our staff and students in meeting these emergency situations in our own limited way and gain from its significant educational experience? In response to the challenges and opportunities of higher education at grass root level, at Ahmednagar College, we felt persuaded that we should continue to explore avenues of new educational experience for our students and staff apart from the regular teaching schedule prescribed by the University. It is with this vision that we responded to try to relate education to the travails of famine in Ahmednagar area, perhaps, the severest of its kind, in this century as a result of the failure of the monsoons consecutively for the third year.

Some Experimental Programmes:

The college community had to face serious scarcity conditions off and on. During 1952 the situation was less serious than it is today and the student body was also small and selective. The students and the staff responded by organising a collection drive of clothes and jawar bread from the town folks. They toured the villages and distributed these articles to the villagers. They also shared the ground water supply of the campus with them. Today the number of students has gone up from 400 to over 4000. The scarcity conditions this year have directly affected thousands of our own students. This time the challenge came from within, to meet the crisis by relating our efforts in mobilizing the available resources to a meaningful educational experience. We have experimented with different types of programmes in which both students and staff have participated.

Immediate Action Projects

(i) Seva Mess

The drought conditions of 1971 made it impossible for several students from rural areas to make adequate arrangements for their meals. In order to encourage such students to continue their college education, *a seva mess was started on the campus on an* experimental and temporary basis. Applications were invited from the needy students and a screening committee of students interviewed them before they were finally selected as members of the subsidised seva mess. To cut down the cost of the meals, student volunteers came in to help in the management by shopping for the vegetables, cutting the vegetables, helping with the cooking and the distribution etc. Having gained experience from the last year's experiment, the mess was revived again this year and 200 students are making use of this facility managed by students themselves under the guidance of competent faculty members. The objective of this programme is (a) to help the students to learn to select the most needy fellow students, (b) to provide opportunity to make use of available resources and minimise expenditure (c) to create a sense of concern for fellow students and to promote dignity of labour and self help.

(ii) "Adoption" scheme

The adhoc Council consisting of student and staff representatives suggested that an appeal should be made to students as well as staff members to accept the responsibility of feeding a needy student, each for the three crucial months before the University examination. Though the response was poor in terms of the number of actual "adoption" cases, the participant students in the promotion of the scheme found it as a very valuable experience.

(iii) "Instant green revolution" project

Soon the students who worked with Seva Mess discovered that in a drought stricken area, the vegetables are expensive. This problem was discussed with some of the farmers from a nearby village which struck an abundant source of water in their new community well. The farmers offered to provide free land and water from the community well if the students are willing to try their hands at vegetables growing. The NSS students formed working parties along with other interested students and the staff accepted the offer to which free ploughing was also added by the farmers. A beautiful vegetable garden has come up which is supplying vegetable to several messes. The enthusiasm grew further and more land was obtained for cultivating quick growing "gajaraj" grass for the use of drought stricken cattle as well.

(iv) Feeding Programme for the disabled

In a survey undertaken by students in nearby villages, it was noticed that pregnant women, old small children could not work on scarcity relief work projects and had to depend on the charity of others for their survival. A proposal for starting a feeding programme was submitted to CASA and with their help, this programme is on its way. With the help of voluntary agencies like Lion Club a scheme for the supply of Jawar bread at the work site at a cost price is being planned.

(v) Free Medical Aid

The survey team also noticed that medicine were out of reach of the inhabitants of these villages. The sick people continued to suffer and some of them succumbed to their ailments. With the help of the Local Medical Association & the Lion Club, a free clinic in a centrally located village has started functioning. For serious cases arrangements for hospitalization will also have to be made.

(vi) Fund raising projects

This has been found as one of the most difficult projects especially in the scarcity stricken area. However, two student teams worked on it in consultation with staff volunteers. One group produced a Marathi play, *Kaka Kishacha*, and staged charity shows in different towns to raise money. The other team worked hard for several days and produced a large number of paintings, embroidery and dolls for sale at the Funfair collection drive. They also ran a canteen at the fair and donated the proceeds for the relief funds. Though the amount raised may be small in proportion to the tremendous need, their enthusiasm, sense of participation and gainful experience turned out to be of great value to each one of the participants.

"Morale booster" Programme

A general sense of depression and pessimism was noticed among the scarcity stricken people in the villages with which our students were associated. A student team designed a Marathi play and staged it in different villages in the evening after the workers returned from the relief projects. The response was encouraging. Some of them offered small donations from their relief work pay for the medical aid programme.

"City College-affiliation" Programme

We have received inquiries from individual students and faculty members from Bombay and Poona about the possibility of their visiting some of our projects and gain first hand experience of the scarcity conditons. One of the teams had expressed a desire to participate in such efforts. Among the Bombay colleges, Chetana, Wilson and St. Xavier's have come forward to keep in touch with the scarcity projects by sending the visiting team of students and staff who could share their experience with others in their colleges. They have also offered voluntary services and have organised social collection drives whenever necessary.

"Planning and Training" Programme

The periodic threat of scarcity conditions in the area have prompted us to take up some long term relief measures. The importance of proper planning and training for meeting such exigencies have to be realised and different surveys have been contemplated.

Some of the outstanding gains of educational experience from these projects have been (a) practical experience in planning at the grass root level, (b) understanding of the great potential for mobilizing resources already available. (c) joint efforts in working with governmental and private agencies, (d) the experience of the importance of follow up work, (e) the understanding of human needs other than the physical needs. (f) self confidence in facing severe human problems even in the face of limited resources and doing something about it, and (g) the joy of sharing even under scarcity conditions. Perhaps, it may be better summarized in the words of a student participant who spontaneously remarked while returning from a field trip, "We have learned more vital things in four weeks of these project than during the past four years through regular college classes." A challenge of this nature lies ahead of every institution and it can be met through developing a proper vision, imagination, patience and a sense of dedication. These experimental programmes conducted at Ahmednagar suggest that a beginning can be made, however small it may be, in other places as well.

English Literature Seminar held at Delhi

A ten day Seminar on English Literature, under the joint auspices of the U.G.C. and the British Council, was organized by the Deptt. of English, University of Delhi, from December 31, 1972 to January 9, 1973.

Three visiting professors from Britain and delegates from various universities of India participated in the Seminar. The Visiting Professors were Prof. M. C. Bradbrook, Professor of English at the University of Cambridge; Prof. A. Rutherford, Regius Professor of English at the University of Aberdeen; and Prof. M. Mahood, Professor of English at the University of Kent. These eminent scholars conducted seminars on *Contemporary Drama, 19th Century Novel* & Shakespearean Tragey respectively. Apart from these three main groups engaged in a literary tete-a-tete and mental gymnastics, a highlight of the seminar was that the three Visiting Professors gave illuminating talks on 'Demonstration & Exemplification of approaches to the teaching of literature' on *The Waste-land, Eve of St. Agnes* and *The Heart of Darkness.*

Three open lectures were also delivered for the benefit of the delegates and other students of literature, who could not be the delegates to the seminars. The three Visiting Professors had informal discussions, on four days, with the teachers of the University on the British University system, the content of English Literature Syllabuses and the attitudes towards the Inter-disciplinary & Comparative studies.

Essentially informative, the seminar was quite a success, insofar as it was instrumental in breaking the ossifying monotony of the Campus life and made the delegates critical in their attitude towards the study of literature. Notwithstanding the general complaint that no startling statements were made by the Visiting Professors nor was the searching light focused on the new facts, the seminar did make the delegates aware of the new critical credos and made them have a new look on the study of Literature. They were able to perceive the fallacies of having a rigid and static outlook. This heightened awareness of the subject was much noticed as such a seminar was being held after a lapse of three years.

Dr. Sarup Singh, the Vice-Chancellor, University of Delhi, while thanking Dr. A. N. Kaul and other colleagues in the English Dept., U.G.C. & the British Council, emphasized the need of ever widening contacts between the scholars of Indian and British Universities to keep up the tempo generated by the Seminar.

U.G.C. RECONSTITUTED

The Union Govt. reconstituted the University Grants Commission with effect from January 15, 1973. The reconstituted commission now comprise 12 members including the Chairman and the Vice-Chairman.

Dr. George Jacob, Vice-Chancellor of Kerala University has been appointed the Chairman. He would, however, assume office on January 23 when Prof. D. S. Kothari retires. Prof. Satish Chandra will be the first fulltime Vice-Chairman under the amended act. The other members are: Mr I. D. N. Sahi, Secretary, Ministry of Education & Social Welfare; Mr. M. R. Yardi, Secretary, Ministry of Finance; Prof. R. S. Sharma, Department of History, Patna University: Prof. Rais Ahmed, Dean, Faculty of Science, Aligarh Muslim Universiy; Prof. S. Gopal, Jawaharlal Nehru University Prof. M. Santappa, Professor o Physical Chemistry, University o Madras; Dr. K. C. Naik, Vice Chancellor, University of Agricultural Sciences, Bangalore; Prof B. M. Udgaonkar, Tata Institut of Fundamenatl Research, Bombay: Dr. Amarjit Singh, Director Central Electronics Engineerin Research Institute, Pilani; an Mr. K. T. Chandy, Chairman Kerala State Industrial Development Corporation Ltd, Trivandrum.

IN THE NEXT ISSUE

- * 48TH ANNUAL MEETING OF THE BOARD
- * DROUGHT IN MAHARASHTRA —ITS EDUCATIONAL IMPLICATIONS

DEVELOPMENT PLANNING

—A CASE STUDY OF NORTH BENGAL UNIVERSITY

K. Mukerji

It would appear that some kind of a failure has been built into the development of the numerous small universities in India. They have not only catered to a much smaller number of students and that at a substantially higher cost, as compared to their parent bodies, but have also, by and large failed to develop and spread the university spirit in the region of their operation. On the whole they have been administration dominated unhappy and noncreative human groups, without the capacity to feel inspired and, in turn, inspire the students. Inspite of the fact of much larger resource availability per teacher, per student and larger real income for the teaching staff, they have not been able to prevent the teachers and students from looking nostalgically at the larger centres, and ultimately to the centres in advanced countries. This is reflected in the fact that it is difficult to keep good teachers and research workers and to keep them in the campuses, to say nothing of the low-key campus activities. To lapse into the hackneyed and confused Education Commission analogy, as academic masses they have not grown to be of a critically large enough size, so that they could have an effective life of their own. Nobody seems to have gained except a few Vice-Chancellors, Registrars and occasionally a few Heads of Departments, but even that temporarily.

There seems to be three or four basic reasons for this state of affairs. These Universities have very largely been Vice-Chancellor and administration oriented. The relative vitality or moribund nature of the university has depended crucially on the enthusiasm of Vice-Chancellors or Vice-Chancellor Registrar teams, which have often been a little too little or too much enthusiastic,for the sake of public morality to accept; but such enthusiasm has scarcely been academic anywhere. The enthusiasm has been about filling posts where financially necessary and not filling them where diversion of resources is possible and to keep just enough people to keep the public, the government and the U.G.C. satisfied. Such a view point invariably leads to a shortage of research funds, ranging from the library through the laboratory to field work. So much so, that any proposal for unconventional experiment is more likely than not be laughed out of court. This is not exactly the purpose for which university communities should primarily exist. The extent an academically unimaginative Vice-Chancellor, Registrar, Finance Officer or even an Estate Officer can ruin the spirit of an university, appears surprising. But what is really extra-ordinary is the national capacity to produce an administrative system that is unable to prevent this from happening. The personality and attitude of the Vice-Chancellor seems, so far to be the only instrument available as a counterpoise.

It would, however, be idle to pretend that there is no question of a large scale academic failure involved in the process. It seems that the small universities have to commit all the mistakes that the large universities have committed, before they can make any contribution to the system. Invariably the small universities get manned by rejected and/or frustrated people from the older and larger universities, and the best that they can do is to replicate in detail what they have been familiar with. This ranges from courses, syllabi, teaching methods, examination procedures, relationships between practical and theoretical elements, down to the frustrating interpersonal relationships. If applied mathematics is hydrodynamics in the parent universities, it cannot just be econometrics in the subsidiary. General science courses have to be physics and chemistry, pure and applied, to be developed subsequently along familiar lines. No small university has yet suggested a joint course in botany and chemistry, geology and physics, economics and agronomy, without bothering about the parent disciplines, from the fairly obvious consideration that given the resources and the environmental problem, such specialised courses would be much more functional in respect of the creative adoption of knowledge. The arguments that would weigh would be job opportunities as lecturers in the larger and more familiar domain of the parent universities. Experiments, if any, are to be conducted only by the latter.

The ultimate point at issue thus appears to be what can and should be the objective function of an university community. The answer to the question depends, to a considerable extent, on whether there is any kind of a built-in conflict between job opportunities and academic conformity as against functionalism. It is extremely probable that there are none. In fact, the target of higher education can and must be to produce functional expertise, that is, expertise that can solve the community's problems. No system of higher education can develop this quality if it considers the problem of perpetrating itself over much. Therefore, a system cannot be developed on the basis of preparing teachers who would mechanically fit into the educational system, without even attempting to make an impact outside. Though the spectacle of students tearing up their degrees and demanding jobs is real, poignant and serious enough, it is simply a fact that most of whom who do so should not have come to the universities at all. In any case, the problem of finding jobs, or even to provide an illusion that one is not unemployed, are not the functions of the university system. It should be recognised to belong to the realm to which it does, aggregative national planning by the government. The university system is a delicate and potentially powerful organization, that can ill use its potentialities in looking after unwanted children from the other parts of the social system. If it is to exist, and it is a costly thing in a poor country, it must justify its existence in terms of creativeness. In cases very unusual difficulties are actually created, the U.G.C. and the Inter-University Board may do, at least a modicum of serious academic homework and work out a set of equivalences that would work reasonably well. It is for the innovating small universities to press for it.

In substance, the small universities cannot develop themselves into viable and academically creative units, if they keep on the beaten track. They must innovate. This is enjoined on them specifically by three-factors; (i) shortage of resources ensures that unless self-sustaining academic cross-fertilization is achieved in respect of a much smaller collective faculty size, small universities can never work, (ii) it is necessary to innovate for the sake of innovation, and freeing a group of men from the shackles of a moribund system. Actually, the purpose of creating new universities, is designed exactly to do this, and *(iii) they must innovate with an eye to regional* scientific functionalism. For instance, marine biology should be developed at Waltair and not in Delhi, forestry and plant ecology at North Bengal and not in Bombay. It follows that North Bengal should not develop pure physics and pure chemistry or any of its applied forms involving cyclotrones, low temperature states or computers, but should experiment with bio-physics and bio-chemistry, archaeology and cultural anthropology, instead of general and Islamia history, agronomy and agricultural economics instead of general economics. In general, it should try to build up as many hybrid courses as it can, so that effective cross faculty communication can develop rapidly and the intellectual give and take so produced used effectively to reduce the sense of isolation.

There is no doubt that the reorganization of the science streams can be most effective in many respects in case the science teachers concerned along with a few imaginative experts look seriously into the matter. In respect of the social sciences and humanities, the changes that appear essential are as follows. By all criterions North Bengal cannot afford to have separate departments of economics, commerce and political science. On the other hand, all these departments suffer by being treated as humanities subjects instead of being treated as social sciences. Further, neither political science nor commerce can be seriously taught except in conjunction with some papers in sociology. Of the so-called social sciences, history alone is logically capable of being handled as a humanities subject. It is, therefore, proposed that the North Bengal University considers the setting up of a faculty of social sciences covering the existing departments of economics, commerce, and political science and reinforce it with a half department, to start with, of sociology, and organise or reorganise, as the case may be, in a way that the combination of papers are such that exchange of teachers and students become feasible. For instance, economics may develop common courses with commerce and political science, covering micro-management and public policy respectively. A new course blending political science and sociology may be evolved. A more daring combination of four accountancy oriented commerce papers and four mathematics oriented economics papers, on operations research may as well, be tried. If it is agreed upon in principle, there would be no difficulty at the level of details, except, of course, at the level of individual prejudices. Such reorganizations would be worth trying, *Mutatis mutandis*, or Gauhati, Dibrugarh, Utkal, Bhubaneshwar and many of the small universities.

U.G.C. PLANS JOB-ORIENTED COURSES

The University Grants Commission is actively considering a scheme of some universities to introduce special professional courses at the first degree level. To meet the development needs of the country many state governments and universities have suggested various steps to make these courses more practical and useful. The objective of this scheme is to provide a degree with specialisation in subjects like business administration, accountancy, stenography and such other fields where there is sufficient demand. An effort is made to diversify courses so that students could offer a larges number of courses in combination with other academic subjects. It is expected that this arrangement would make their degree courses more flexible than at present.

A beginning has already been made by the Delhi University where a college of professional studies has been started from the current academic session. A similar diversification was also taking place in the courses in polytechnics and engineering colleges.

It is also expected that guidance and counselling would be expanded considerably in the Fifth Five Year Plan and new types of jobs available in the country would be brought to the notice of college students and ample facilities would be provided for starting related industries and these facilities would be intimated to the youth well in advance.

PROF. SESHACHAR LINKS STUDENT UNREST WITH POPULATION EXPLOSION

The outgoing President of the Indian National Science Academy, Prof. B. R. Seshachar in his presidential address analysed the problems of student numbers in the universities. The recent deterioration in the academic standards in the universities could be traced to the student explosion. The universities were unable to match huge enrolments with their existing facilities and this had led to students unrest in so many instances.

He observed that even the best institution in the country were in a state of disarray. Not only science but all scholarship was at a discount in the country because the universities were suffering from neglect and decay. The situation had become so bad in certain universities that no one was willing to be its Vice-Chancellor. He maintained that there had been at times senseless and irrational proliferation of universities without proper provision of even basic facilities. This proliferation had obviously taken place under local pressures. In some universities even post-graduate teaching was being done with little or no equipment. Even courses remained unchanged for many years and there was no inter-disciplinary involvement.

Tracing the reasons for disorder and unrest in the universities, he pointed out the purposelessness of the courses in most of the universities and the minimal value they provided for meeting the challenges of living. The second was infiltration of political parties conflict in university campuses and the third was the enrolments of large numbers. He said that the only way to remove unrest and relieve the pressures in the universities was "to restore a semblance of standards and to introduce some process of selection in enrolments." He called for re-conciliation between democracy and quality and suggested that no university should be started under pressure and State should provide massive grant for the improvement of these institutions. Parochialism, regionalism, casteism and linguism should cease to have place in universities and antiquated rules and regulations should be done away with immediately.

N.C.C. EVALUATION PANEL MEETS

The Union Education Ministry has appointed a panel to evaluate the N.C.C. programme with a view to correlating it with other youth activities in the country. The panel would suggest the various changes in this direction and is headed by Dr. G.S. Mahajani, Vice-Chancellor of Poona University. The first meeting was held in Delhi on January 12. The report is expected to be submitted by the end of June this year.

VIEW POINT

STUDENT TEACHER CONTACT

In the present most unfortunately intriguing circumstances in which the teachers have practically lost their natural control (thanks to the intriguing control of designing outsiders!) over the young collegians who are thoughtlessly and heedlessly demanding their rights and have forgotten or thrown to the winds the fundamental base of the role of students, namely the sense of duty and responsibility, I have just a notion that the situation is not irretrievable in spite of the time-factor having very much complicated it, provided that the educational authorities and the teachers have not altogether lost faith in the ultimate Sambit (good sense) of the youngsters, and, to rouse it, make sincere and honest efforts which cannot fail to make a dent in the heart of the most refractory of the collegians, if summoned with all their sympathy, tact and wit. I do not belittle the importance of wit in causing a sort of welcome diversion in the truculent ways of a number of collegians whom their teachers know fully well. That the youngesters are being disastrously misdirected by designing outsiders who would make capital out of their predicament is a big challenge to the authorities. The collegians are evidently too immature to realise that the gesture of sympathy and material assistance from external agencies in the matter of the non-fulfilment of their demands, which turns them from their accredited monitors, their teachers, to self-styled monitors, will ultimately spell their academic disaster.

In the extremely intriguing circumstances facing the authorities and the teachers, they may be making conscious and deliberate efforts to wean away the refractory collegians from an indulgence in a politicised or communalised adulteration of the pure academic atmosphere. That is an extremely tough job for them as politics and vested interests have surreptitiously spread their tentacles on the young immature minds of the collegians, which is working havoc in the University Campus. Still I am inclined to believe that there is a way out of the havoc, which depends on a significant change, in the present outlook of the teachers, from a commercial spirit to a missionary one-a sense of dedication not only to the task of imparting knowldge but also to the task of building the character and morals of the students. Not that such a sense is conspicuous by its absence now, but that those who are still actuated by it have little *locus standi*. The latter task can best be done in informal seminars with the students supplemented by periodical visits to the residences of the students and expecting them to pay return visits. Of course, the periodical visits presuppose that the teachers will think it worth their while to shed, for the time being, their superiority and authoritarian complex and discuss with the students their vital issues as friends and benefactors, which may make all the difference in the students' present veering round to their self-styled monitors. (This is no surrender or even a condescension, but an imposed sacred duty of sincere and honest solicitude for the moral regeneration of the students.) The students' points of view have to be patiently listened to and scrutinised, and attempts should be made to impress upon them the wider perspective and large implications involved in the issues under discussion. The return visits may have interesting appendices by way of excursions to beauty spots like Topchachi (Dhanbad, Bihar), National Park (Hazaribagh, Bihar), Tiger Hill (Darjeeling, West Bengal), Okhla (Delhi) and others. Let Dame Nature be invoked as a tripartite agent in the student-teacher contact to mellow down the irascible temper and violent trends of the misdirected restive collegians. (One significant impulse from Dame Nature may remarkably facilitate the planned efforts of the teachers in the connection provided that they are disposed to give a new look to the unconventional facility).

I have every reason to believe that the suggested friendly and beneficial contact which my colleagues and I practised in the pre-independence days and which yielded good results has an important, fundamental role to play in the present inordinately strained relations of the students with the authorities and the teachers, namely rousing the dormant good sense of the misguided restive youths, without which all measures, however good in themselves, will fail to produce permanent results.

Sudhir Kumar Ganguli
Professor of English, Patna College and
Ranchi College. (retired)

THE PLACE OF SCIENTIST IN UNIVERSITIES

Sir George Porter, Director of Britain's oldest laboratory of chemsitry, while addressing a gathering of scientists on the occasion of Science Congress held at Punjab University Chandigarh, suggested that the study of pure science should not be neglected as it was the basis of all applied sciences. He also suggested that scientists should be involved in the framing and implementation of a country's scientific and technological plans and be associated with policy making and execution bodies concerned with developmental programmes.

On the role of universities in scientific research, Sir George said active and high quality fundamental scientific research could be maintained only through universities without entailing much of the resources. He observed that even in developed countries, pure research takes a very small fraction of resources. The creation of a nucleus of pure scientist in India is essential as they would act as interpreters of what was going on in other parts of the world in the field of science. He felt that India should not spend much of its resources on costly pure science research, but only on very important science research which was useful in raising the living standards of the people.

He was of the opinion that the most productive and creative period in the life of a scientist is his first five to ten years in the research field. In view of this, he suggested that the scientists after 40 should move to other jobs like teaching or administration. In his country, the scientists held top executive position in some of the industries and the results were comparatively favourable. He said scientific organization should be headed by senior scientists instead of civil servants.

OFFICIAL OF OVERSEAS COUNCIL VISITING INDIA

Prof. Terrence Ingold, until recently Professor of Botany at Birbeck College, London, will be attending a Seminar at the Centre for Advanced Studies in Botany in Madras University from January 15 to 22. Later in February, he will visit Delhi and hold discussions with the U.G.C. on the setting up in India of centres for the training of technicians.

Prof. Ingold is the Vice-Chairman of Inter-University Council of Higher Education Overseas in U.K. He has been concerned for a number of years with the projects of universities in Britain and India. The expertise in the sphere of technicians training available with the Inter-University Council would be useful in the development of such training programmes in the country.

Ten-Year British Plan For Educational Expansion

An ambitious 10-years plan for expanding all aspects of British education from nursery schools to universities was announced in a Government document published recently by the Secretary of State for Education and Science, Mrs. Margaret Thatcher.

The document, "Education: A Framework for Expansion", designed as a framework for future action, envisages increased expenditure of up to £ 960,000,000 in five educational programmes over the next decade.

The five programmes are:

Nursery education: By 1981, free nursery education should become available on a half-time basis to children aged three and four whose parents wish it. Priority will be given to helping families in deprived areas, and the aim is to increase the number of nursery assistants and nursery teachers to give a ratio of one adult to 13 children.

This new policy for educating children under five will be the first systematic step since 1870, when education was made compulsory at the age of five, to offer an earlier start in education.

School buildings: As part of a more systematic long-term approach to renewing school buildings, a larger building programme is to be instituted to replace or improve obsolete primary and secondary schools. A rapid acceleration is also proposed in the provision of more special schools for handicapped children.

Staffing standards: In order to improve progressively staffing standards as the school population increases a 10 per cent increase in the teaching force, equivalent to 110,000 extra teachers, is envisaged by 1981.

This 10 per cent figure, which the Government proposes as a basis for planning, would represent an overall pupil/teacher ratio of about 18½ to one by that date.

Teacher training: A major new initiative is proposed to improve both the pre-service and in-service training of teachers in school and in colleges of further education. Under this programme, teachers would be released from 1974 for in-service training for periods equivalent to one term in every seven years of service.

The Government further proposes to work towards the achievement of a graduate teaching profession with new three-year courses incorporating educational studies and supervised practical teaching experience.

Higher education: The aim is to develop a wider range of opportunities, including the introduction of a new two-year course leading to a diploma of higher education. To this end, and working on the basis that by 1981 there might be 375,000 places in each of Britain's university and non-university sectors, provision is to be made to raise the number of residential places at universities and to increase the number of major building projects for polytechnics and other colleges of further education.

The document makes it clear that there is no easy way of deciding what weight should be given to each of the five programmes as the total resources will always be limited. It also stresses that within the 10-year strategy for the education service there will be room for tactical flexibility and for variations in timing.

PRIVILEGES OF STUDENTS IN U.S.S.R.

AS ALWAYS ON THE EVE of the students vacation, railway and air booking offices all over the Soviet Union have begun selling tickets to students of higher and secondary special educational establishments of the USSR at 50 per cent of their price.

This is just one of the privileges enjoyed by nine million Soviet students. In the new year some Republics have established another privilege for students. Box offices at theatres and concert halls sell tickets to students at 50-70 per cent of their price. Prices of tickets to students have been cut in Azerbaijan, Armenia, Turkmenia, Tajikistan, Uzbekistan and Moldavia in accordance with the decisions of the Governments of these Republics. Many theatres of the Russian Federation have also reduced prices for students.

A public service centre has been opened on the campus of the Engineering Institute in Voroshilovgrad (the Ukraine). Students can hire refrigerators and TV sets, tourist tents and other equipment for hikes at reduced rates, and even have a suit done to order. This type of service for the students has been introduced in Kazakhistan, Armenia, Georgia, Moldavia and some other Republics.

The subsidy to meet the cost of these services is paid by the trade unions of the higher school.

Soviet architects have developed new projects of very comfortable student hostels complete with cafes, gyms and youth clubs, rooms for two or four students.

Students pay roughly one-thirtieth of their stipends for the hostel accommodation.

The living standards and housing conditions of students in the USSR are steadily improving. Last autumn stipends for higher school students was increased by 25 per cent, and for students of special technical schools by 50 per cent. In addition, Soviet trade unions grant allowances to students making good academic progress and taking an active part in public work. Practically all the students making good academic progress receive stipends.

New sanatoria, rest-homes, and sport camps are to be built for students in the next few years.

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INDO-FRENCH SCIENTIFIC COLLABORATIONS

The Second Indo-French Cultural Exchange Programme for 1971-73 envisages collaboration between the two countries in science and technology. As a result, a French Scientific Delegation led by Prof. Fernand Gallais, Scientific Director, National Council of Scientific Research, France visited India from Dec. 21, 1972 to 4th Jan. 1973. Included in the French Delegation were Prof. Paul Sallebert, Delegate General, French Federation of Electronics Industry, Prof. Minko Balkanski, Professor at the University of Paris VI and Prof. Francois Bertein, Professor at the University of Paris XI. During their two weeks stay in India, the French Scientists visited several scientific and technical research establishments and also some science-based industries. The French delegation had a final round of talks with an Indian Delegation headed by Dr. Y. Nayudamma, Director-General, CSIR, India. The French Ambassador in New Delhi also joined the discussion.

As a result with their talks with Dr. Y. Nayudamma, Director-General, CSIR, the Indian and French sides identified areas in which the two countries can start immediate collaboration in research, development and production. The two countries agreed that there is a vast scope for fruitful scientific and technical cooperation between India and France. The two sides also identified those areas in which collaboration in research and development can be taken up as a long range programme. The areas identified for starting mutual cooperation between the two countries include; Material Sciences, Electronics, General and Scientific Instrumentation, Optics, Chemical technology, Petrochemistry, Fertilizers and Tyres etc. The possibility of cooperation in the areas of Molecular biology, Cancer research, Aeronautics, Telecommunication, Solar energy, Leather technology was also considered.

The two sides have agreed that the result of talks between the French Delegation and the Indian Delegation should form the basis of general scientific agreement to be signed by the Governments of France and India.

NEW VARSITY FOR EASTERN REGION

A Bill to set up a university for the hill people of the north eastern region is likely to be introduced in the next session of Parliament.

The proposed central university would be federal in character with headquarters at Shillong. It would have more than one postgraduate centres and a campus. These centres could form the nuclei for the future state university in these areas. Over 30 colleges in Arunachal Pradesh, Meghalaya, Mizoram and Nagaland would be associated with this university. There is a provision for the association of institutions in Manipur with it at a later date. The recommendations of the Kothari and Gajendragadkar Commissions have been incorporated in the provisions of the new *Bill*. These relate to the freedom to make institutions of higher education autonomous and student participation in policy making. The official language of the new university will be English with *Hindi* as second language. Special efforts would also be made to develop tribal languages. It is expected that the university will help the people of the region to develop their own cultural life and at the same time to help them integrate with the main stream of national life. A provision of Rs. 1 crore has already been made for the university in the Fourth Plan.

COMMITTEE ON RETURNS FROM AGRICULTURAL RESEARCH

The Indian Council of Agricultural Research has appointed a high level committee to study the return on investment in agricultural research. Dr A.S. Kahlon, Dean of the College of Basic Sciences and Humanities, Punjab Agricultural University, Ludhiana is the Chairman of this Committee. Other members are: (i) Dr Dharam Narain, Chairman, Agricultural Prices Commission, New Delhi; (ii) Dr D.K. Desai, Professor (Cooperation), Institute of Management, Ahmedabad; (iii) Dr A.R. Kamath, Gokhale Institute of Economic Research, Poona; (iv) Dr Raj Krishna, Professor of Economics, University of Rajasthan, Jaipur; (v) Dr. H.K. Jain, Head of the Division of Genetics, I.A.R.I., New Delhi; (vi) Dr M.N. Dass, Director, Institute of Agril. Research Statistics, New Delhi; (vii) Dr R.K. Patel, Head of the Division of Dairy Economics & Statistics, N.D.R.I., Karnal; (viii) Dr Ambika Singh, Assistant Director General, ICAR and (ix) Dr L.S. Venkataraman, Head of the Division of Agricultural Economics, I.A.R.I., New Delhi. Dr P.N. Saxena, Assistant Director General of the Indian Council of Agricultural Research will be its member secretary.

Advt.

New Textbooks In English from the USSR Available in India

1. **Articles from the Neue Rheinische Zeitung, 1848-49, Marx and Engels,** pp. 303, Rs. 3.15 (Progress Publishers Moscow)

The collection contains articles published in 1848-49 in the Neue Rheinische Zeitung, which Lenin characterised as "the best, unsurpassed organ of the revolutionary proletariat". These articles are an extremely important source of information for the study of the 1848 revolutions in Germany, France, Austria Hungary and Italy. Marx and Engels sought to carry the democratic revolution to completion, upheld the working class interests, advocated the establishment of a United German democratic republic. They denounced the cowardice and the compromising policies of the bourgeoisie, and their deals with the reactionaries. They devoted a large deal of attention to the national question, examining the position of the Czechs, Poles, Italians and other nations suppressed by Russia and Austria.

The book has a preface, a name index and is annotated.

2. **Asia and Africa: Fundamental Changes,** pp. 385, Rs. 1.75 (APN Publishing House, Moscow)

This book is based on a monograph which appeared in Russian under the title Nanovom puti (On a New Path) and which is the third and last volume of the series Istoriya natsionalno osvoboditelnogo dvizheniya v Azii i Afrika (History of the National Liberation Movement in Asia and Africa). This book also contains excerpts from articles by R. A. Ulyanovsky and other Soviet historians published later.

The book considers the following subjects: the collapse of colonial empires and the formation of dependence and backwardness; industrialization new sovereign states; the overcoming of economic and the agrarian problems; the socio-class formations; the system of people's democracy and revolutionary patriotic regimes, the prospects of their development; the Third World and the two World systems; the place of the liberation movement in the world revolutionary process.

The authors of this book are members of the Oriental Studies & the Institute of Africa of the U.S.S.R. Academy of Sciences.

3. **European Security—A Spectrum of Opinions** pp. 100, Re. 0.75 (Moscow News, Moscow)

People from 21 countries speak on problems of security and co-operation in Europe.

4. **Semiconductor Testing & Adjusting, G.** Green and A. Shokalsky, pp. 205, Rs. 4.80 (Mir Publishers, Moscow).

This is a textbook for vocational schools. It has been divided into following chapters:

1. Radio Parts. General; 2. Temperature Measuring Instruments; 3. Semiconductor Devices and Their Applications; 4. Semiconductor Technology; 5. Electrical Measuring Circuits; 6. Measurement of Electrical Parameters; 7. Adjustment of Semiconductor Devices; 8. Testing Semiconductor Devices.

5. **Social, Economics, Political Socialism and. Capitalism—Score and Prospects,** pp. 290, Rs. 3.40 (Progress Publishers, Moscow)

Among the many letters received by Progress Publishers from all over the world one recurring request has been for a book on contemporary affairs; what is going on in the world, which way the events are developing, what is the present balance of power in the world, the meaning and direction behind capitalist-socialist economic competition, what the future has in store for mankind? This book is intended to fill that need. It describes the principal course of world events and the major trends in capitalist and socialist societies. This analysis is based on a formidable array of facts and figures on a sound scientific foundation and authoritative evidence from scholars from all parts of the world.

The book was compiled by the following staff members of the Institute of World Economy and International Relations of Academy of Sciences of the USSR: Prof. V. Aboltin, Prof. Y. Pevsner, O. Salkovsky, M. Barabanov, V. Gantman, S. Zagladina, A. Lavrishchev, I. Orlik, V. Razmerov, D. Tomashevsky, A. Shapiro and F. Burdzhalov.

6. **Hotbed of Racialism and Neo-Colonialism**, Tepliusky, pp. 87, Re. 0.40 (APN Publishing House, *Moscow*)

In South Africa, which is under the rule of the racialist and colonialist racialism is manifested in different forms. Of these the most barbarous is apartheid, the doctrine of racial purity which is official state policy in the Republic of South Africa. The apartheid means "Isolation", "racial segregation". In practice it means the division of people according to their race on the basis of the so-called theory of "white supremacy", a completely anti-human and anti-scientific theory.

MAIN DISTRIBUTORS

Peoples Publishing House,
Rani Jhansi Road, (P) Ltd.
New Delhi, 55.

People's Book House,
Piramshah Manzil,
Relief Road, Ahmedabad.

Progressive Book House,
Shillong Road, Panbazar,
Gauhati.

National Book Agency (P) Ltd.,
12, Bankim Chatterjee Street,
Calcutta.

NCBH (P) Ltd.,
6/30, Mount Road, Madras,
Madurai, Coimbatore,
Tiruchirapally, Tanjaur.

Navakarnataka Publications,
Bangalore-9.

Prabhath Book House,
Trivandrum, Ernakulam,
Alleppy, Calicut, Cannanore,
Udyogmandala, Quilon.

Visalandhra Book House,
Elura Road, Vijayawada-2.

Visalandhra Book House,
Sultan Bazar, Hyderabad.

People's Book House,
Hazaribagh Road, Ranchi.

Himachal Book Centre,
3, Mall, Simla.

Nabajuga Granthalaya,
Rajrakabati Road, Cuttack.

Manisha Granthalaya (P) Ltd.,
4/3-B, Bankim Chatterjee St.
Calcutta.

PPH Book Stal.,
190-B, Khetwadi Main Road,
Bombay-4.

Punjab Book Centre,
1940, Sector 22-B, Chandigarh.

New Age Book Centre,
Near Chowk, State Bank of
India, Ghee Mandi, Amritsar.

Punjab Book Centre,
Post Office Road Jullundur.

Progressive Book Depot,
Motia Park, Sultania Road,
Bhopal.

Kitab Ghar,
Chaura Rasta, Jaipur.

Chetna Book Centre,
1, New Market, Hazratganj,
Lucknow.

NEWS FROM ELBS

The following titles have just been published/reprinted in the ELBS edition. They are all prescribed or recommended at the college and university level in the standard edition.

NEW TITLES

ANDERSON, J C & LEAVER, K D	Materials Science	Nelson	Rs. 15.00 (£0.75)
ARCHBOLD, D J W	Algebra	Pitman	Rs. 24.00 (£1.20)
BAILEY, F G	Caste and the Economic Frontier	Manchester University Press	Rs. 18.00 (£0.90)
BANNISTER ROGER (Rev. by)	Brain's Clinical Neurology	O U P (4th edition)	Rs. 26.00 (£1.30)
BLACK SAM	Practical Public Relations	Pitman	Rs. 15.00 (£0.75)
BLAUG, M (Ed.)	Economic of Education Vol. I	Penguin	Rs. 4.00 (£0.20)
BLOOM ARNOLD (Ed. by)	Toohey Medicine for Nurses	Churchil/Livingstone (10th ed.)	Rs. 16.00 (£0.80)
BARON, D N	A Short Textbook of Chemical Pathology	E U P	Rs. 12.00 (£0.60)
CHAPMAN, W A J	Elementary Workshop Calculations (SI Units)	Arnold	Rs. 12.00 (£0.60)
CLARK, L R & others	The Ecology of Insect Populations in Theory and Practice	Methuen	Rs. 15.00 (£0.75)
DANIELSON, G L & WALKER, R S	Radio and Line Transmission Vol. III	Iliffe	Rs. 15.00 (£0.75)
DELANEY, C F G	Electronics for the Physicist	Penguin	Rs. 10.00 (£0.50)
EPSTEIN, T S	Economic Development and Social Change in South India	Manchester University Press	Rs. 14.00 (£0.70)
FRENCH, A P	Special Relativity	Nelson	Rs. 12.00 (£0.60)
GREEN, J H	Basic Clinical Physiology	Oxford	Rs. 13.00 (£0.65)
HAVARD, C W H	Current Medical Treatment	Staples Press	Rs. 35.00 (£1.75)
HICKS SIR JOHN	Critical Essays and Monetary Theory	Oxford	Rs. 9.00 (£0.45)
HOWSON, A G (Ed.)	Development A New Curriculum	Heinemann	Rs. 15.00 (£0.75)
KILFORD, W	Elementary Air Survey	Pitman	Rs. 23.00 (£1.15)
MOLLISON, P L	Blood Transfusion in Clinical Medicine	Blackwell	Rs. 56.00 (£2.80)
MORLEY, A & HUGHES, E	Principles of Electricity in SI Units	Longman	Rs. 7.80 (£0.39)
PARKINSON, A C	Foundations of Technical Drawing	Pitman	Rs. 5.00 (£0.25)
PILLING, H V	Concise Intermediate Physics (MKS edition)	E U P	Rs. 11.00 (£0.55)
ROSSER, W E V	*An Introduction to The Theory of Relativity*	Butterworth	Rs. 40.00 (£2.00)
SMITH, R C & SMITH, P	Mechanics	Wiley	Rs. 22.00 (£1.10)
STONES, E	An Introduction to Educational Psychology	Methuen	Rs. 11.00 (£0.55)

WHEELER, B E J
An Introduction to Plant Disease
Wiley Rs. 22.00 (£1.10)
WILSON, C G
Electricity and Magnetism
E U P Rs.12.00 (£1.40)

REPRINTS

BIGG, W W & Perrins, R E G
Spicer & Pegler's Book-keeping and Accounts (7th edition)
H F L Rs. 28.00 (£1.40)
CAMPBELL, E J M & others
Clinical Physiology
Blackwell Rs. 30.00 (£1.50)
CHAPMAN, W A J
Workshop Technology Part I Rs. 14.00 (£0.70)
Part II Rs. 16.00 (£0.80)
Arnold
CLAYTON, S G & others
Obstetrics. (Formerly ten teachers)
Arnold Rs. 50.00 (£2.50)
HART, H L A
The Concept of Law
Oxford Rs. 20.00 (£1.00)
Humphery, J H & White, G
Immunology for Students of Medicine
Blackwell Rs. 20.00 (£1.00)
INGOLD, C T
The Biology of Fungi
Hutchinson Rs. 5.00 (£0.25)
LAST, R J
Anatomy, Regional and Applied
Churchill Livingstone Rs. 80.00 £4.00)
MACFARLANE, D A & Thomas, L P
Textbook of Surgery
Livingstone Rs. 35.00 (£1.75)
Myles, M F
Textbook for Midwives
Livingstone Rs. 22.00 (£1.10)
PHILIPSON, J
Ecological Energetics
(Studies in Biology No. 1)
Arnold Rs. 6.00 (£0.30)
RICHARDSON, M
Translocation in Plants
(Studies in Biology No. 10)
Arnold Rs. 6.00 (£0.30)
SCOTT SIR RONALD BODLEY (Ed. by)
PRICE'S TEXTBOOK OF THE PRACTICE OF MEDICINE (7th ed.)
Oxford Rs. 52.00 (£2.60)
VALLINS, G H
Good English-How to Write it
Pan Rs. 2.00 (£0.10)
WIGGLESWORTH, V B
The Principles of Insect Physiology
Methuen ABP Rs. 50.00 (£2.50)
WILCOCKS, C & MANSON-BAHR, SIR P
Manson's Tropical Diseases
Bailliere Rs. 70.00 (£3.50)
WILLIAMS, P L & others
BASIC HUMAN EMBRYOLOGY
Pitman Rs. 12.00 (£0.60)

E.L.B.S. TITLES CAN BE PURCHASED FROM LEADING BOOKSELLERS THROUGHOUT THE REPUBLIC. IN CASE OF DIFFICULTY PLEASE WRITE TO THE ADDRESS BELOW.

ASSISTANT EDUCATION ADVISER (BOOKS)
EDUCATION ADVISER'S DEPARTMENT
BRITISH HIGH COMMISSION, C-25 SOUTH EXTENSION PART II, NEW DELHI-110049
WHO CAN SUPPLY THE NAMES AND ADDRESSES OF YOUR LOCAL STOCKISTS

CUT ALONG HERE

UN/73/1

To:
Assistant Education Adviser (Books),
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British High Commission, C-25, South Extension Part II, New Delhi-110049.

From:
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Full details of the above titles and the 1973 catalogue are available
(1) Please send me ☐ copies of your 1973 catalogue
(2) Please send full details of the following books

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P. O. I. I. T. Powai, Bombay-76.

Advertisement No. 736/73.

Applications stating particulars of qualifications, experience, age, previous employment, salary drawn and scale etc., are invited on or before *15th February, 1973* by the Registrar, Indian Institute of Technology, Bombay for the post of P. T. Instructor in *Yoga*. Enclose Crossed Indian Postal Order for Re. 1/- (25 Paise for Scheduled Caste/Tribes Candidates). Applicants alreday in Government/Semi Government Organisations and Educational Institutions must apply through proper channel.

Scales Rs. 200-15-320-20-500 plus usual allowances.

Qualifications & Experience:-

1. Diploma/Certificate in Yoga from a recognised Institution.
2. Teaching/Instructional experience in Yoga, preferably in a recognised college.
3. Adequate knowledge in the theory and practice of Yoga.
4. Ability to communicate and give instructions in English.

Qualification relaxable in the case of candidates of proven ability with adequate number of years of service and experience.

BANARAS HINDU UNIVERSITY

Faculty of Commerce & Business Management

ADMISSION NOTICE

Applications are invited for admission to the following full-time courses commencing July, 1973:

1. Master of Business Management.
   (2-year four semester course)
2. Bachelor of Business Management.
   (3-year six semester course)

Eligibility: M.B.M. A Graduate of any discipline of a recognised University.

B.B.M.: Passed the Pre-University Course/Higher Secondary School Certificate or an equivalent examination.

Those appearing in the qualifying examination in 1973 may also apply.

Admission Procedure: Admission is based on the applicant's academic and other record, his performance at the written test, interview and group discussion. The group discussion will be only for the M.B.M. candidates.

Admission Tests: The written test will be held at Bombay, Hyderabad, Kanpur, Patna, Delhi and Varanasi on February 25, 1973. Those who qualify in the written Test will be called for GROUP Discussion and/or Interview at Varanasi at a later date.

For Application Form: Write to the Dean, Faculty of Commerce and Business Management, BANARAS Hindu University, Varanasi 221005 enclosing an Indian Postal Order for Rs. 2 (payable to the Banaras Hindu University, Varanasi) and a *self-addressed but unstamped* envelope (size 28 cms 15 cms). The forms can also be had personally from the Faculty Office (between 11.00 a.m. and 2.00 p.m.) by paying Rs. 2.00 by Indian Postal Order payable to the Banaras Hindu University. Cash/Money Orders/Cheques not acceptable.

The forms completed in all respects and acompanied by the Test Fee and supporting documents must reach the Faculty on or before February 10, 1973. Forms from those opting for the Varanasi Centre and delivered in person *at the Faculty Office will be accepted* without late fee upto February 17, 1973, and with a late fee of Rs. 10/- upto February 24, 1973.

UNIVERSITY OF DELHI

DELHI-7.

Applications are invited for the following posts:-

1. Hindi Department
   One Professor
2. Mathematics Department
   One Reader in Mathematical Statistics
3. Economics Department
   i. One Professor in Economic History
   ii. Two Research Associates (C.A.S.)
   iii. One Lecturer in Economic Statistics.
4. Commerce Department
   One Reader
5. Physics and Astrophysics Department
   One Professor
6. Library Science Department
   One Reader
7. Faculty of Management Studies Department
   (i) One Professor
   (ii) One Reader

The scales of pay of the posts are:-

a) Professor
   Rs. 1100—50—1300—60—1600.
b) Reader
   Rs. 700-50-1250.
c) Lecturer and Research — Associate
   Rs. 400-40-800-50-950.

All posts carry Dearness, City Compensatory, House Rent Allowances and Retirement benefits as admissible under the rules in force from time to time. Research Associateship being a floating post does not carry retirement benefits.

1. *General Qualifications:*

(a) *For Professorships*

A Scholar of eminence.

Independent published work of high standard and experience of teaching Post-graduate classes and guiding research for a considerable period desirable.

(b) *For Readerships*

Good academic record with a

irst or high second class Master's Degree in the subject concerned with a Doctor's Degree or equivalent published work.

Independent published work (in addition to the published work mentioned above) with at least 5 years' teaching experience in Honours/Post-graduate classes essential.

(c) *For Lecturership and Research Associateships*

Good academic record with a first or high second class Master's Degree or an equivalent degree of a Foreign University in the subject concerned

Lecturers in Economics in a University or College are eligible to apply for the Research Associateships. The persons who are already working as Lecturers in Colleges will have their salaries protected if they are selected as Research Associates in the Department of Economics. The tenure of Research Associates is normally for a period of two years with a possible extension by one year more.

II. *Special/Desirable Qualifications:*

(i) *For Professorship in Physics:*

Specialization in any of the subjects, namely, Nuclear Physics/ Solid State Physics/Electronics/ Microwaves/Spectroscopy and high energy Physics either theoretical or experimental.

(ii) *For Professorship in the Faculty of Management Studies:*

Familiarity with modern concepts and techniques of financial management or with economic aspects of business. Teaching experience at the Post-graduate level in any of these two subjects and ability to guide research students.

(iii) *For Professorship in Economic History:*

Specialization in the field of Economic History.

(iv) *For Readership in Commerce:*

Specialization in Marketing/ Taxation Laws and Practice.

(v) *For Readership in the Faculty of Management Studies:*

Master's Degree in Business Management or Operations Research for teaching quantitative techniques in Management. Familiarity with concepts and theories in Management or experience in a Business House using quanitative methods is highly desirable.

(vi) *For Readership in Library Science:*

The candidate should have specialization in Econometrics.

(vii) *For Readership in Library Science:*

Persons with experience in a responsible professional capacity in addition to teaching experience will be given preference.

The prescribed application forms for the posts can be had from the office of the undersigned (Estab. IV) either personally or by sending a self-addressed envelope and stamps worth Rs. 1.45 (including Refugees Relief Stamp) to cover postage.

Applications accompanied by attested copies of Degrees & other Certificates etc. should reach the undersigned not later than 15th February, 1973.

Selected candidates will be required to produce the original documents relating to their age, qualifications, experience etc. before joining the appointment.

Note:—(1) It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases in respect of all posts on the recommendation of the Selection Committee.

(2) Canvassing in any form or on behalf of the candidate will be a disqualification.

(3) In case, suitable candidate is not available for appointment to the post of Reader in Library Science the vacancy may be filled in by the appointment of a Lecturer.

(4) Candidates called for interview from outside Delhi will be paid contribution towards their Railway Fare as per rules.

(K. P. Govil)
Registrar

UNIVERSITY OF RAJASTHAN JAIPUR

Advertisement No.2/73

"In connection with the posts of Readers (two) and Research Associates (two) in the University Department of Chemistry under the Special Assistance Programme of the U.G.C. advertised in the month of August, 1972 under Advertisement no. 6/72 which appeared in the Hindustan Times and the Indian Express, New Delhi, fresh applications are invited (on the usual prescribed form and through Proper Channel in the case of those already in employment so as to reach this office latest by the 25th February, 1973. Those who have already applied in response to the said advertisement No. 6/72 need not apply again but may send additional information, if any, to the undersigned by the same date viz. 25th February, 1973."

Sd/L.P. Vaish
Registrar,
Dated 25.1.73

UNIVERSITY OF RAJASTHAN JAIPUR

Advertisement No. 1/73

"In connection with the posts of Professors (*Geography 1, Sociology 1* and Education 1) and Readers (Pol. Science 1, Philosophy 1, Public Adminstration 1, and Adult Education 1) advertised in the month of August, 1972, under Advertisement No. 5/72 which appeared in the Hindustan Times and the Indian Express, New Delhi, fresh applications are invited (on the usual prescribed form and through proper channel in the case of those already in employment, so as to reach this office latest by the 28th February, 1973. Those who have already applied in response to the said advertisement No. 5/72 *need not apply again but they may send additional information*, if any to the undersigned by the same date viz. 28th February, 1973."

Sd/- L.P. Vaish
Registrar.
Dated: 25.1.73

BANARAS HINDU UNIVERSITY
Institute of Medical Sciences, Varanasi—221005

ADMISSION NOTICE
M.B.B.S. COURSE

Applications are invited for admission to the M.B.B.S. Course of this Institute on the prescribed form, obtainable from the Director, Institute of Medical Sciences, Banaras Hindu University, Varanasi-221005. The application forms alongwith necessary documents will be supplied on written request accompanied by a crossed *postal* order of Rs. 2/- payable to the "Director, Institute of Medical Sciences, B.H.U., Varanasi". It can also be obtained personally on submission of a crossed postal order of Rs. 2/- or on cash payment of Rs. 2/- on any working day within office hours from the office of the Director, Institute of Medical Sciences, B.H.U., Varanasi. **The last date for issue of application forms is 20th of March 1973,** and thereafter sale of application form will be totally closed.

Candidates shall be eligible for appearing in the Pre-Medical Test (Competitive Entrance Examination) for admission to the I Year of M.B.B.S. Course of the Institute of Medical Sciences if he/she has:

(a) Passed the Intermediate Science or Pre-Medical Course *examination* or an equivalent examination of a recognised Indian University with Physics, Biology and Chemistry (Inorganic and Organic),

(b) **Obtained a minimum of 50% marks in the aggregate of Science subjects** (Physics, Chemistry and Biology) in I.Sc. or equivalent examination, provided that in the case of Scheduled caste and Scheduled tribe candidates — the minimum qualifying marks will be 45%. The scheduled caste and *scheduled tribe candi*dates shall have to submit a certificate from the District Magistrate stating that the candidate belongs to a Scheduled Caste or a Scheduled Tribe, and

(c) Attained the age of 17 years on 31st December, *of* the year in which admission is sought. The maximum age limit, however, is 25 years on 31st December of the same year.

All those candidates who are appearing at the qualifying examination as per clause 'a' **and expect to fulfil the eligi**bility requirements of clause 'a' and 'b' before the 10th of July of the year of P.M.T., are also eligible to apply and appear at the P.M.T. However, their performance at the P.M.T. will be considered only if they provide documentary evidence of having satisfied the requirements of clauses 'a' and 'b' by the 10th of July of the year of admission at the latest.

Candidates seeking admission to the Institute who satisfy the above requirements shall be required to appear at "The Pre-Medical Test (Competitive Entrance Examination)". There shall be a Common Competitive Entrance Examination *for* entrance to Institute of Medical Sciences, B.H.U., All India Institute of Medical Sciences, New Delhi and Mahatma Gandhi Institute of Medical Sciences, Sewagram, Wardha. The Examination shall be conducted on 1st June 1973 at seven centres viz. Delhi, Bombay, Madras, Patna, Hyderabad, Nagpur and Varanasi.

There are a total of 50 seats available for admission to the M.B.B.S. course of this Institute.

Candidates who are interested to compete for All India Institute *of* Medical Sciences, New Delhi and/or Mahatma Gandhi Institute of Medical Sciences, Sewagram Wardha, **in addition to** this Institute, are advised to go through the advertisements of these institutions and also to obtain copies of prospectus etc. from them directly in order to know number of seats available in those institutions, their eligibility rules and other details.

Candidates should submit their application forms duly filled as per procedure laid down on the instruction leaflet, **latest by the 31st of March, 1973.** Incomplete applications & applications received after the due date will be rejected. For further details, the prospectus may be consulted and no interim enquiry will be attended to.

ANDHRA UNIVERSITY
WALTAIR

Applications in the prescribed forms are invited so as to reach the Registrar on or before 26.2.73 for the following posts. Each application shall be accompanied by a crossed Indian Postal Order for Rs. 10/- or a Bank receipt remitting the amount in the State Bank of India.

1. **Librarian:** 1.
   Scale: Rs. 1,000–50–1,500.
2. **Lecturer in History & Archaeology:** 1.
   Scale: Rs. 400–40–800–50–950.
3. **Lecturer in Applied Physics:** 1.
   Scale: Rs. 400–40–800–50–950.
4. **Lecturer in Mineral Process Engineering:** 1.
   Scale: Rs. 400–40–800–50–950.
5. **Analyst:** 1.
   Scale: Rs. 400–40–800–50–950.
6. **Senior Fellowships:**
   Physics: 3.
   Rs. 500/-
   Botany: 2.
   Rs. 500/-
   Geology: 2.
   Rs. 500/-
7. **Junior Fellowships:**
   Physics: 3.
   Rs. 300/-.
   Botany: 4.
   Rs. 300/-.
   Rs. 300/-.
   Geology: 2.

Fixed amount

8. **Technician:** 1.
   (Clinical Chemistry Laboratory);
   Scale: Rs. 160–10–260–12–320.
9. **Compounder:** 1.
   Scale: Rs. 90–6–150–7–192.

QUALIFICATIONS:

1. **For the post of Librarian:**

(a) First Second Class M.A./M.Sc. M.Com. Degree plus First or Second class B.Lib. Sc. or Diploma in Lib. Science. The Degree in M.Lib.Sc. is a preferential qualification.

(b) At least 10 years' experience as Librarian or of working in a responsible professional capacity in a University Library.

(c) Recognised Research experience or work on special projects.

2. **For the post of Lecturers:**

First or High Second class Master's Degree in the concerned subject.

3. **For the post of Analyst:**

M.Sc. First Class/High Second class in Chemistry, one or two years' experience in Silicate Analysis and familiarity with Analytical Techniques using spectrophotometer, Flame-Photometer, Polarograph, Spectrograph and X-ray diffraction.

4. **For Senior Fellowships:**

Doctorate in the related subject or equivalent Published Research work in recognised journals having aptitude for original and independent research. For senior Fellowships in Botany, research *in Plant Cyto-Genetics is essential.*

Age: Not over 40 years.

5. **For Junior Fellowships:**

First Class Master's Degree in related subject and some aptitude for Research.

Age: Not over 35 years.

6. **For the Post of Technician:**

(a) S.S.L.C.

(b) A certificate in Laboratory Technician's Course of the Medical department.

7. **For the post of Compounder:**

(1) Pass in S.S.L.C.

(2) A certificate of having passed Compounder's examination conducted by Government of Andhra Pradesh or Diploma in Pharmacy examination.

Age: Not exceeding 30 years.

Requisitions for the application forms and other details may be made to Sri P. Hanumantha Rao, *Deputy Registrar, Andhra University*, Waltair accompanied by a self-addressed and stamped envelope and a State Bank Challan or crossed Indian Postal Order for one Rupee. The University reserves the right to fill or not to fill the posts. The cover containing the application should be superscribed as "Application for appointment to the post of ...."

Sd/- M. Gopalakrishna Reddy
Registrar.

GOVERNMENT OF INDIA PUBLICATIONS

USEFUL BOOKS

TITLE	PRICE Rs. P.	POSTAGE Rs. P.
• Indian Navy Examination, July and December 1967, July 1968, December and July 1969	0 75	—
• Indian Navy Examination, December 1970	1 70	0 20
• Indian Navy Examination, July 1971	1 70	0 15
• Indian Navy Examination, December 1971	1 70	0 20
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UNIVERSITY NEWS

A MONTHLY CHRONICLE OF HIGHER EDUCATION AND RESEARCH

Shrimali delivering his presidential address at the 48th Annual meeting of the Board held at Kolha

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FROM IUB TO AIU

The 48th annual meeting of the Inter-University Board which took place at Kolhapur on February 5 & 6, 1973 was notable for several things. As a consequence of the withdrawal of membership by the University of Ceylon, the Board decided to re-designate itself as the Association of Indian Universities (AIU). This change will come into effect with effect from April 1, 1973. Reactions to this change of name available so far go to show that a very large number of people have welcomed it. While the Board was and will continue to be basically an **organisation on which universities** are represented by their vice-chancellors, it is reasonable to hope that after this change of name more and more teachers will come to be associated with this organisation. In that sense the change of name signifies a certain shift of emphasis also.

In keeping with the mood of the house, the President, Dr. K. L. Shrimali first took up those items on the agenda which had a bearing on the governance of universities. Certain recent developments in this regard were causing concern and he felt that the Board should address itself to these matters first of all. For instance, university legislation was on the anvil in a number of States—Uttar Pradesh, Gujarat, Maharashtra, Madhya Pradesh, Kerala, Bihar, etc. In most of these States the accent was on assumption of more and more powers by the Governments. In the opinion of the Board this represented a trend which required to be arrested. A resolution passed on the subject is given separately in a box.

Two important proposals referred by the Planning Commission dealt with the question of fee policy at the higher educational stage and the issue of selective admission to universities. In regard to the former, the Board resolved as under:

"There are a number of other factors which merit extensive consideration, such as the following:—

1. the pattern of expenditure in regard to higher education at the Centre and the State level;
2. the pattern of expenditure at the State level in respect of the State maintained sector and the privately financed sector;
3. the basis of grant to universities and colleges;
4. the State policies in regard to helping the under priviliged to pursue higher education.

The Board suggested that all these details must be gone into thoroughly before a proper decision on the subject can be taken. As argued at present the Board is unable to support the proposal of enhancement of fees."

In regard to selective admissions, the Board agreed with the general approach of the Planning Commission and endorsed the following issues as formulated in its document:

(a) At the first degree stage, (particularly in the case of liberal arts courses), serious and sustained attempts should be made to diversify admission of students into different channels, namely, regular colleges, afternoon and evening colleges and correspondence courses. Broadly speaking, the relative proportions of these channels should be 50:25:25 respectively to be achieved by the end of the Fifth Plan.

(b) Part time and own time education should be accorded parity of status and prestige with the regular colleges. The quality of academic and physical facilities in these institutions should, in no way, be inferior to that in the regular institutions.

(c) Admissions to regular colleges should be made keeping in view the academic and other physical facilities to be determined before admissions are actually made.

(d) Admission to postgraduate level should be selective on the lines of admissions to professional courses. Since postgraduate education is intimately connected with research, postgraduate colleges should where possible, be grouped and the universities should sponsor postgraduate centres to benefit and strengthen all such colleges.

Since the Board is due to celebrate its Golden Jubilee in 1975, it was decided to get a history of the Board written and also draw up a programme of celebrations. A number of other resolutions were also adopted.

Prof. K.S. Narang, Vice-Chancellor, Punjabi University, Patiala, was elected as President of the Board for the next year. The next meeting of the Board will be held at IIT, Kharagpur.

THE FUTURE OF INDIAN EDUCATION

Paper presented at One Asia Assembly held in February, 1973 at New Delhi

Twenty five years after India became independent of British rule, it seems reasonable to ask in which direction the country has been moving and what lies ahead say during the next 25 years. This exercise was not undertaken with any degree of seriousness or rigour a few months ago when the silver jubilee of the country's freedom was celebrated. In fact the whole thing was done in a low key. The situation did not look too bright then, nor has it visibly improved since. But there is no reason why the country should not have examined the path of development taken by it so far, so that guidelines for future action could be evolved. whatever can or might be said about other sectors of activity, not to analyse the trend and nature of developments during the last 25 years in the field of education is to more or less make sure in advance that progress in the next 25 years will be unproductive, lopsided and, in the ultimate analysis, socially unjust.

It is extraordinarly how much resistance there is to an analysis of the past failures in the field of education. The last major exercise in this regard was undertaken by the Education Commission which worked for two years from 1964-66. Even a casual reading of its report makes it clear that the Commission was proceeding on the assumption that it had a clean slate to write on. That is to say it felt free to make any suggestions or recommendations whether these were compatible with the existing reality or not. Perhaps the point can be illustrated by taking up a minor example from the report. The report of the Education Commission said that no remuneration should be paid to examiners for doing examination work. In principle, the argument is impeccable. Evaluating work of students is a part of the job for which teachers are employed. To draw a distinction between teaching and evaluation is, to put is simply, somewhat artificial. The Commission was therefore perfectly correct in affirming this principle. But the issue is not of saying the right thing but of suggesting a course of action which, given the existing situation, can mark a real improvement if and when acted upon. In other words, unless the recommendation can be implemented and is indeed of a kind which has a reasonable chance of being acted upon, the recommendation is as good as not made.

What is said here has somewhat larger implications as a matter of fact. An analysis of the reports of the various committees and commissions made during the last century or so indicates, generally speaking, two trends. Either these reports repeat the recommendations made by earlier committees and commissions or they make recommendations of the kind which it is not possible to implement. In both cases the basic situation remains unchanged. Indeed, it deteriorates because a bad situation, if unattended to, become worse and worse with the passage of time. This is precisely what has been happening in our context. Committee after committee has made the same set of recommendations or, which is the same thing, a new set of unrealistic recommendations but this has not meant any concrete action so that the situation today is infinitely worse than it was say in 1882 when an important committee, for instance, recommended that education at the secondary level needed to be vocationalised.

Perhaps the foregoing paragraphs need to be qualified in one sense. Some of the recommendations do get acted upon. Those are of the kind which do not require any dislocation of the given balance of forces, social and economic or can be implemented through an increased investment of resources. A case in point, are some of the recommendations of the University Education Commission (1948-49), one of the more influential commissions in recent years, comparatively speaking. This Commission recommended the adoption of the three-year degree course. To implement it did not require any basic social engineering and so on the whole the recommendation was implemented. Furthermore, this Commission suggested an improvement in the salary scales of teachers and the channeling of funds from the Centre to the universities through the establishment of a statutory body on the pattern of the British U.G.C. Both these recommendations were acted upon and with entirely salutary results. But this Commission also made quite a few other suggestions which have been left severely alone. To implement them required fairly drastic changes within the academic system and the academic community was not prepared for it. This explains why. for instance. despite the Radhakrishnan Commission's total onslaught on the examination system, the system remains what it was.

To seek to analyse the past failures is therefore not only an academic exercise. On the contrary, it has wide ranging and concrete implications. More specifically. unless one can answer the question why some of the recommendations of the earlier committees and commissions were acted upon and some were not, one is not ready to suggest anything with regard to the future. In the following few pages it is proposed to raise a few issues which would take into account the reasons for past failures, the possibilities of present action and what the position is likely to be in case the present trends continue unchecked:

1) While some kind of a tentative explanation has been offered above, it needs to be specified even more starkly. Whatever in these recommendations required drastic modification, whether academic, social or economic. was ignored. But whatever could be accommodated within the existing structure through an increased investment of funds was almost invariably done. The rising curve of expenditure on education in the last 25 years indicates two things. growth in numbers as also implementation of some of the recommendations involving extra expenditure made by the various Committees and Commissions. The basic elements in the academic situation thus did not undergo any change.

2) In respect of primary education, the failure has been on two fronts. Investment at that level has been grossly inadequate in relation to the magnitude of the problem. But what is worse, and this is the second aspect of the problem even this inadequate investment is being only partially utilised. Something like half of the children that join drop out after a couple of years. And when they do drop out they have in no sense been benefitted by their brief stay in the school. So a substantial part of the investment is as good as wasted. Why they drop out is primarily owing to economic reasons. Poverty compels them to act as productive members of the family. The answer to this problem is therefore not only increased investment in elementary education which is sought to be made in the Fifth Plan but also an increased tempo of economic growth. As long as 40-50% people live below the poverty line, elementary education will always continue to be a hit and miss affair. The connection between education and economic growth is, as should be evident, clear and indeed inescapable.

3) The secondary schools receive more and more students because more and more of them pass out from primary schools. This happens mainly in respect of students from those families which can afford to go on attending school, something like 33 to 50% of the population. Investment in primary education has been so unsatisfactory as not to cover even this category of students. Perhaps in the Fifth Plan this situation will change.

Conditions in these schools are appalling. Teachers are ill-paid, physical conditions in most cases are unsatisfactory and the general level of accomplishment is so very poor that all that a person passing out from a high school brings with him is a certain ability to read and write but not some of those middle level skills which would make him a more productive member of society. The alienation from physical labour. so characteristic of our society is, to some extent, also a by-product of the period of high school education.

4) While in 1950-51 40% of the total expenditure on education was on primary schools, by 1965-66 (the latest year for which detailed figures are available) it had come down to 26%. The expenditure on other sectors of education had increased and during the last five years or so it has remained, as far as one can judge, at a low level, that is to say, closer to 26% than 40%. It is only in the Fifth Plan that the proportions are sought to be changed.

5) It is at the tertiary level that expenditure has been going up steeply. To refer to **Education in India**, Volume 1, again from which these figures are taken, in the year 1965-66 the expenditure on universities was 7.9%, that on arts and science colleges 7.7% and that on professional colleges 9.5%. These figures are revealing and deserve to be scrutinised for the

implications that they throw up which are, broadly speaking, as follows:

(a) The expenditure on universities includes some expenditure on professional education also. Some of the universities are predominantly technical universities. Roorkee, for example, is purely technical. Jadavpur is predominantly technical. Then there are universities like BHU, Annamalai, Baroda, which have well developed faculties of technology. A certain percentage of the expenditure on universities would therefore have to be taken away and added to the expenditure on professional colleges.

(b) 85% of the total enrolment of students is in arts and science colleges. Out of the total expenditure not even 10% is spent on these 2,500 odd colleges; since 1965-66 the number has gone up by another 500 or so. This happens largely because no one has any serious expectations from college education. On the whole the college is regarded as a transit point between school and entry into life. At the age of 15-16, when most students pass out from school, they are too young to enter life. So a few years have to elapse before they are ready for doing something. These 3-4 years are spent in college. The colleges on the whole are ill-equipped and ill-staffed and students do not get anything like satisfactory education. If some students can manage to study with profit that is hardly by design. Put another way, one can say that these colleges are, really speaking, devices for containing social dissatisfaction and not institutions where knowledge or skills are imparted.

(c) The expenditure on professional colleges is much higher than on other colleges. Indeed it is something like 1½ times that on the arts and science colleges as also on the universities. Yet the number of students studying in engineering, medicine, etc., is about 8% of the total enrolment. In other words, as compared to approximately 80% of the students who are in arts and science colleges, the 8% or so who are in professional colleges cost 1½ times extra.

6) Why should this be so? The answer is that all this is a part of the strategy of development adopted by the country. In no country and under no system, education is or can be an autonomous activity. It is always a part of the total activity with certain objectives clearly formulated and expressed in terms of priorities and programmes. The Approach paper of the Fifth Plan does not mark any clear break with the strategy of develoment being followed so far. The only notable change that it marks in respect of education is additional provision of a substantial magnitude for elementary education. This is an attempt to redress the balance. But let there be no mistake about it. The basic structure of education remains unchanged which .to put it briefly, is as follows.

Primary and secondary education have to be provided because there is a certain amount of demand for them. But this demand comes largely from those sections of the population which are neither politically very important nor socially vociferous. The vociferous sections of the population while numerically quite small, are very assertive in respect of what they want. They want two things: more and more education at the tertiary level and at a cost which is not significantly higher than what it used to be 10-20 years ago. Even if the costs have been increasing those should be absorbed by the national exchequer and not by the individuals concerned. That all the people who pass through the tertiary sector of education are unable to get jobs and that educated unemployment has been increasing rather than decreasing does not seem to cause any serious disquiet to those asking for education at this level. Dissatisfied they are to some extent but not to the extent as to ask for a change in the strategy of development. That is because in spite of some of the patent disadvantages which the existing strategy of development imposes upon them, there are some advantages too. The most obvious of them is that most of the gains of development go to them rather than to those who live below the poverty line. On balance therefore they seem to prefer the existing arrangement to any other arrangement that might be thought of.

7) It is largely for these reasons that whatever might have been the recommendations of experts, no basic structural changes have taken place in the system of education to put it provocatively the present system seems to suit those who by and large stand to benefit by it. To change it in any significant way would require basic changes as indeed a different strategy of development and that is why even though every

Minister of Education when he stands on the platform condemns the system, he ends up by continuing to support it.

8) This however is not to deny that there are serious stresses and strains developing so that some of the policies now being follwed are becoming increasingly vulnerable.

(a) For instance, the unusually lavish expenditure on professional education is not proving productive. A large number of engineers are unemployed. Something like 50,000 engineers, doctors, scientists and other research workers have already left the country to settle down in other countries. Then there is the related question of the costs of professional education. Something like 75-80% of the costs come from the national budget and it is a moot question whether in terms of social justice it is defensible to pay those who can afford to pay for themselves and to deny education to those who are unable to pay for themselves.

(b) The approximately three million students at the under-graduate level are feeling more and more restless and thwarted. A good deal of the student trouble that is witnessed in the country originates from this source. The present device of keeping these students occupied in what passes for education so that they are not all of them simultaneously let loose upon the market cannot be sustained for long. The number is already unmanageable and to deal with such a large number of students in this kind of a dishonest and, what is worse, unproductive way will not work.

(c) While this is not so true of other sectors, at the tertiary sector at any rate the work ethic of teachers is beginning to pose problems. In most places no progress can be made precisely because the teachers are unwilling to exert themselves fully. It is not a problem which can be described as insoluble but another few years of indecision and drift and it will almost become that:

(d) Over arching almost all these problems of education is the sustained and unrepentent neglect of adult and continuing education. No serious attempt has been made either by voluntary agencies or by the Government to involve those people who are now uninvolved.

Clearly, the system is so wasteful that to carry on with it is becoming more and more difficult. Those who drop out from the primary schools are seldom literate. Those who go through secondary schools acquire literacy but little more than that. Those who go through college acquire some skills, but these are not identifiable enough to enable the student to become a productive member of the society. At the professional level enormous sums of money are being expended for training people who are not required in the proportion that they are trained. What is more, the cost of training them is so high that some of these funds, if diverted to other sectors of education, would help to improve things.

All these are important reasons for changing the system. But the system cannot be changed primarily because it is a part of the strategy of development being followed by the country as a whole and secondarily because there is no incentive for change even from within. The teachers are as much a part of the academic stagnation as the students or their parents. To infer from the foregoing analysis that the system in its present form cannot survive too long should not be regarded as an unrealistic statement. The strongest argument for having to change it is of course economic. In terms of her total budget, both at the central and the state levels, India is spending something like 14% per year on education. The only other item of higher expenditure in the total budget is defence. This is only a way of saying that while it is possible to some extent to step up expenditure on education, this cannot be done on any significant scale. With the rate of growth being what it has been for the last several years even this much of expenditure on education is proving to be some kind of strain. The case for being more conscious of productivity in the field of education is thus inescapable.

It would be somewhat optimistic however to believe that the economic argument would prevail without a drastic modification of the startegy of develpoment being followed by the country. After all what is being witnessed in the field of education is being witnessed in several other fields of activity as well; medicare housing, transport, etc. for instance. Can it happen that these other fields of activity are so modified as to ensure better social justice and education remains what it is? It is difficult to be categorical on this point. In other fields of activity the basic issue is social justice. In education it is social justice as well as better productivity.

Amrik Singh

ALLAHABAD SEMINAR ON EXAMINATION IMPROVEMENT

A seminar on the improvement of examination was organized by Education Department of Allahabad University recently. The University Grants Commission provided some financial assistance for this purpose. Dr. Babu Ram Saxena, the Vice-Chancellor, while inaugurating the seminar urged the academics to bring out speedy and effective changes in the examination procedures. He cited the example of ancient institutions like Gurukul where a system of examination was the examination of conduct and the purity of character was considered the greatest achievement of the student. It was rather unfortunate that the situation has totally changed and in today's examination system the conduct finds no place. This is harmful in building up of national character. The autonomy of institutions of higher learning which was so prevalent in the Gurukul system is totally absent these days.

The seminar was attended by Vice-Chancellors, Professors of Education, Mathematics and Statistics, Research Workers, Officials of the State Govt. and the University Grants Commission. The seminar focussed the problems concerning the practical utility of examinations, the evaluation of mental abilities, modernisation of syllabus and curricula. The question of validity of examinations was also given considerable attention. The question of providing optional question in various examinations was well debated. The various methods to reduce the element of subjectivity in the evaluation methods were examined. It was agreed that elaborate marking instructions, check-list of answers and model scripts for various divisions should be designed for the use of universities. The question of "scaling" and its effect on borderline cases was also considered at length. The merits and demerits of the semester system internal assessment, paper pencil test and the achievement of students in practicals and viva-voce were some of the other interesting topics for discussion.

CONCESSIONS FOR OFFICE STAFF AT G.N.U.

The Syndicate of Guru Nanak University has decided to allow the employees working in any of their offices or departments of the governments of Punjab, Haryana and Himachal and Chandigarh Administration to appear at the Pre-University, B.A. and M.A. examinations privately. However, this privilege will be confined to those who have been in the permanent employment for at least three years preceding the year of examination. But in those areas where evening colleges exist, the candidate would be encouraged to join the courses in such colleges. If he fails to secure admission or his special duties in the establishment does not allow him to avail of these facilities, he would be allowed to appear as a private candidate.

SEMINAR ON HIGHER SECONDARY EDUCATION

The Education Department of the West Bengal Government would be organizing a two-day seminar in Calcutta early in March. The seminar will seek guidelines on the structure, curriculum and other details regarding the proposed higher secondary system of education to be introduced in the state. The Vice-Chancellors of different universities, principals of selected colleges, department officials, president of the board of secondary education and some educationists would also be participating in the seminar. The seminar would be focussing the problems of two-class higher secondary education in the existing colleges and the consequential financial implications. The structure and objective of 10—class school syllabus would also come up for discussion.

NCERT'S EXPERIMENTAL PROJECTS

The National Council for Educational Research and Training has approved 297 experimental projects for financial assistance during 1972-73 to be conducted in secondary schools all over the country.

The total grant sanctioned for these projects would be about sixty eight thousand rupees.

Projects have been sanctioned in the areas of teaching-learning practices, curriculum, examination and evaluation, behaviour problems, co-curricular activities, organisation and administration.

The Council has formulated a scheme to encourage secondary school teachers to undertake projects directed towards improvement of classroom practices and related activities. These schemes are primarily to encourage them to adopt a scientific approach to the solution of their problems.

The State-wise distribution of the projects is: Rajasthan 72, Mysore 56, A.P. 33, Gujarat 27, M.P. 26, U.P. 17, Punjab 15, West Bengal 10, Tamil Nadu 10, Maharashtra 8, Chandigarh 6, J & K 6, Bihar 5, Orissa 2, Kerala 2, Delhi 2.

SPACE TECHNOLOGY CENTRE AT AHMEDABAD

Three new teaching centres will be started from the next session at the Gujarat University to meet the growing demand for trained personnel in the fields of space research, communications technology, business management and computer science. Over the years Ahmedabad has become a centre of activity in the field of space research, TV and satellite communications. The university would start with one-year postgraduate diploma courses in the first instance. Later on a two-year postgraduate course would be added. The initial enrolment will be restricted to twenty students.

University also plans to offer short-term refresher courses for in-service candidates. The university authorities are already in touch with the Faculty of the Indian Institute of Management and representatives of Physical Resarch Laboratory and Indian Space Research Organization and various other industrial houses. The basic philosophy of the Centre will be to generate employment oriented educational training programmes based on the requirements of the various industries of the region. The University Grants Commission has welcomed these courses and is impressed with the job potential in the various fields.

ICCR SUMMER CAMPS

The Indian Council for Cultural Relations this year would organize four camps for the benefit of foreign students who are studying in Indian Universities and other institutions of higher learning. Three such camps would be held in Kashmir during the summer between May 15 and June 26 and the fourth in South India from May 15 to June 11. These camps are mainly organized to acquaint the foreign students with the culture of the country. The programme will include sight-seeing, lectures on India and other participating countries, debates on international affairs and cultural programmes from different lands. The interesting programme of "Me and My Country" would provide opportunity to the participants to speak about themselves and their motherland.

MADRAS FILM INSTITUTE

Another Institute for film acting has been planned on the pattern of the Poona Film Institute at Madras. It would however be financed largely by the South Indian Film Chamber of Commerce. In the first instance, a two-year course in acting in the four South Indian languages of Tamil, Telugu, Kannada and Malayalam would be given. Mr. P. Raju, Principal of the Institute and a Hollywood trained consultant on acting, announced that subsequently theoretical instruction in the principles and aesthetics of acting with special reference to cinema would also be provided. Practical training will comprise of exercises in movements, mime and gesture, development of dialects and various specialised skills in stunt, music and dance.

The Institute has received good response and as many as 300 students have already sent their applications through the various Southern States. The first batch would be limited to 38 candidates.

NEW COMMONWEALTH YOUTH PROGRAMME

The Commonwealth Ministers Conference concerned with youth matters met in Lusaka recently. The delegates agreed on a six-point plan of action for Commonwealth cooperation which will include opportunites for advanced studies in youth work in Africa, Asia and the Caribbean. Bursaries and fellowships will enable youth leaders to attend these centres and other institutions in developed and developing countries. Special awards will recognise and encourage work by young people for national development.

At the meeting, the host country, Zambia promised £18,000 a year for three years as well as facilities to establish a regional centre.

Mr Richard Wood, the British Minister for Overseas Development announced that his country would contribute 30 percent of expenditure upto a limit of £300,000 during the first three years of the programme.

The next meeting, to review the progress, will be held in Ottawa during August.

GUJARAT UNIVERSITIES ORGANIZE YOUTH CAMPS

The Universities of Gujarat, national social service organizations and Sarvodaya workers have jointly formulated a project which will involve some 10,000 youths to work in the drought hit areas in the State. The project was discussed recently at a two-day convention held at Gujarat Vidyapeeth. Two camps each in Dharampur Taluka of Bulsar District and in Broach District have been planned in the coming three months. Similar youth camps will be opened in 85 other drought affected areas in the State. About 100 students would be working in each of these camps. They would be given training in digging of wells, cattle maintenance, first-aid and other aspects of drought relief works.

The Vice-Chancellors of the Universities in Gujarat also had a meeting recently with the Chancellor Shriman Narayan for this purpose. It was decided that staff and students would be sent out to scarcity areas during vacations. An extensive drive for collecting surplus foodgrains and grass would be undertaken. The Gujarat University has planned to collect Rupees one lakh for the relief work. By the end of March, 10.5 lakh people would be working on different relief works in the State. To solve the acute shortage of water, 5,000 old wells would be deepened and 1200 new ones would be dug and over 2.5 lakh acres of land would be covered under the green fodder cultivation scheme.

VISHWA YUVAK KENDRA

The International Youth Centre, (Vishwa Yuvak Kendra), New Delhi is doing pioneer work in the field of conducting research in matters related to youth and youth service agencies. It also serves as an information centre on youth activities. The objectives of the centre are mainly three: (a) training in youth work (b) research and documentation and (c) promotion of international understanding. The centre seeks to develop a cadre of trained youth workers and leaders to supplement and strengthen the efforts of youth organizations and development agencies. It has set up an Asian Youth Documentation Centre with assistance from UNESCO. There is a hostel attached to the centre where board and lodging facilities are available to young people coming to the capital from other parts of the country and foreign countries. Besides, there is a library specially useful to youth workers and a large conference hall.

In furtherance of its objectives, the centre provides training courses, workshops and seminars. The training courses are mainly man to assist the trainees in (i) assessing the needs and problems of youth population (2) developing suitably need based programmes to respond to the needs and problems of the youth (3) for acquiring the necessary skills in modern methods of youth work.

The centre is organizing a three months certificate course for youth workers from 15th of April to 15th of July this year. The purpose of the course would be to train young men and women as youth workers in a variety of settings and programmes in order to assist the voluntary youth organizations, youth welfare institutions, governmental and semi-governmental agencies and to promote the setting up of youth groups with a view to organizing different types of youth programmes.

This course will be directed towards:—

1. developing leadership potential and the capacity and assuming positions of responsibility in youth and youth service organisations
2. enabling them to acquire the ability to understand the structure and identify the needs of the community to plan suitable programmes and to implement them
3. imparting knowledge of such skills and techniques as will enable them to discharge their functions with competence
4. increasing their capacity to understand and explain government policies to the youth people and to articulate the feelings, sentiments and needs of young people to the government and to the public.
5. helping them to acquire skills necessary for carrying out the programmes of specific youth groups
6. inculcating in them a sense of dedication to work, social awareness and democratic convictions; and
7. creating a cadre of trained youth workers who have a national vision developed through mutual sharing of experiences.

SNDT'S GESTURE

Students of the College of Education of S.N.D.T. Women's University contribute everyday one fistful of foodgrains for relief to students in Poona coming from scarcity areas. The foodgrains amounting to a bag every week is sent to students' mess as gift. Besides, they have collected contributions liberally in cash for the relief of students coming from drought areas.

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Twenty Five Years of University Education

The most obvious difference between our present position in University eduation and what it was before independence is the vast increase in numbers. If a foreign visitor who had been in India before 1947 were to revisit it now, he will be struck by the enormous number of schools and colleges spread all over the country and the vast numbers of young people going to them. Here are some figures to illustrate what is commonly referred to as 'the explosion in education'. Before 1947 the number of Universities in India was 20. Today there are 85 Universities with 3,604 affiliated arts and Science Colleges. In addition there are 9 institutions deemed to be Universities, 5 Indian Institutes of Technology, 25 National laboratories and a few Research Institutes all of them established since independence. The figures of enrolment are even more staggering. Before independence the number of students undergoing higher education was 180,000. In 1964-65 it was 1.5 million and today it is over 3 million. It has been calculated that there is an enrolment increase of 13 percent per annum.

This enormous growth in student population has naturally been accompanied by a corresponding increase in public expenditure on education. On the eve of independence the total per capita on education was Rs. 1.8. By 1965 this figure had risen to Rs. 12 per capita. The significance of this becomes apparent when we realise that educational expenditure has been much more rapid than growth in national income. Yet it cannot be said that we spend as much on education as some of the advanced countries do. The United States, U. S. S. R. and Japan spend about twice as much on education as we do in proportion to the gross national product. According to the Education Commission, India spends a little more than Rs. 10 per capita every year on higher education and research as compared with Rs. 2,000 in the United States.

One major consequence of the uncontrolled quantative growth in University education is the sharp decline in academic standards. From this point of view the phenomenon is better described as an 'inflation' rather than an 'explosion.' As inflation devalues the real worth of money, so has it devalued the quality of education. The reasons for the fall in academic standards are well known. The chief components of education are teachers, students and physical facilities. While before independence higher education was limited more or less to the elite section of society it has now reached mass proportions. Consequently the student population of today is more unequal in its composition than used to be the case before. While in the past only the scholarly minded went up the ladder of education, now higher education is the aspiration of almost every schoolboy irrespective of his native abilities. This has happened because the sections of society which had formerly been excluded from higher education have come to realise that it is only through such education that they can raise themselves to a position of equality with those who have enjoyed a traditionally privileged position. This is a trend which has to be welcomed and encouraged as a socially desirable phenomenon. However, it has to be recognised as one of the factors which have tended to depress academic standards.

The second contributory factor is the teacher. When Universities and Colleges were few the recruitment of teachers could be highly selective. This was further facilitated by the paucity of other openings for the brilliant products of higher education before independence. The Indian Civil Service, the Accounts Service, and other comparable All India Services were able to absorb only a small number of highly qualified Indians since these services were mostly manned by British nationals. Since independence, however, the All India Services have grown enormously with the result that most of the bright products of University education who might formerly have entered the teaching profession are no longer available to it. Higher education, therefore, has had to be content with the second best and often worse.

Thirdly, the increase in the number of colleges has not been accompained by a proportionately high rate of investment on the physical facilities necessary for imparting higher education. Colleges have had to admit increasing numbers every year without a corresponding increase in the necessary facilities, such as class-rooms, libraries, laboratory space and equipment, and other amenities like hostels, canteens and transport.

Shortcomings there have been on the purely academic side as well. Syllabuses, for example, have tended to remain out of date and unrelated to modern developments and needs. Courses of studies have changed very little over the years and have failed to take into account the differing abilities, aptitudes and needs of the mixed quality of the present-day student population The situation has been further worsened by deplorable methods of teaching and even more by an inefficient system if examination. Mass lecturing notes, dictation and examinations which test memorised information in extremely selected areas of the syllabus have destroyed all incentive to learning. Students have often told me that as our present examinations stand it is enough for them to sit down and cram answers to selected questions just before the examinations. They do not find it necessary to apply themselves continuously to their studies over the whole length of the course.

Another major consequence of the quantitative increase in numbers is the wide-spread student unrest which on its turn has contributed to the decline in academic standards. The causes of student discontent are to be found in a multiplicity of factors, some of which are worldwide but many are local. The local factors are related to the consequences of uncontrolled growth which has been referred to earlier: i.e. the lack of adequate physical facilities, out of date syllabuses, ineffective teaching methods and defective examination system. Among the social factors contributing to student protest are political factions, discriminatory practices of certain colleges in the matter of admission and the frustrations caused by the gloomy prospects of employment. While the local educational and social factors are the immediate causes for student revolt, one has to recognise at the same time the more fundamental cause of student radicalism and activism all over the world, viz. the younger generation in a hurry to create for themselves a better world. While disapproving the uglier manifestations of student discontent and their practical effects one has to admit the idealistic inspiration behind it.

Are there any remedies by which the ills that afflict University education can be cured? The Kothari Commission in its comprehensive report has suggested many. These relate to the main components of education viz. students, teachers, syllabuses, teaching methods and physical facilities. As regards students, since not all them who now crowd the colleges have the aptitude for scholarly studies, it has been suggested that admissions should be selective. This would be highly desirable if it were possible. What we actually witness is quite the contrary. Every year more and more students seek admission and more and more colleges come into existence—junior colleges ask to be upgraded, first grade colleges clamour for more and more courses and even put in for Post-Graduate ones. It would seem that in the persent state of society selective admission is not a practicable solution. As long as there are sections of society which suffer from disabilities and the discrimination of the past, it will neither be possible nor even be desirable to restrict admission. Such restriction may result in excluding from the fruits of advancement the less privileged sections of society. Pledged as we are to an egalitarian society we will have to be prepared for more and more of the people at the bottom to push into higher education and through it to a higher social status.

The pressure on higher education can only be eased through other means. Many of our young people now press into Colleges only because they have nothing else worthwhile to do. If they had other useful openings they would not be wasting their time and their parents' hard earned or more often borrowed money in colleges. In the last resort the only effective means for arresting the flooding of higher education is to bring about a rapidly expanding economy which can generate gainful employment *for the young as soon as they leave school.* So long as such avenues are not forthcoming it is idle to think of restricted admission to Colleges.

How then are we to deal with this mixture of widely varying abilities and aptitudes and backgrounds that are now lumped together in our classroom? What is called for is a diversification of courses for various levels of ability. At the moment we put all the students through the same mill as if they were coins coming out of a mint. It is time that we acknowledged diversities among our students and provided courses of studies or training which would suit their abilities and aptitudes and make them grow each to the height of his own capacities. One important result of our present single and uniform syllabus is that while a certain proportion of the student population is unable to cope with it there is another smaller group which finds it not challenging enough. The existing system of education is a deathly leveller which succeeds in keeping down the gifted to an average level while failing in its attempts to pull up those below the line. As a nation we cannot afford to neglect the bright except at our peril. It seems to me that one of the urgent tasks of the Universities in the near future is to devise a system of education which suits the abilities and needs of the wide diversity of students who seeks higher education.

Granting that we have better syllabuses and more carefully selected students there still remains the teacher—the key component of education. No improvement in education at any level can be achieved except through the teacher. How to obtain better teachers and how to keep them professionally equal to their task must be one of the constant concerns of educationists. As it is, we are neither careful in the initial recruitment of teachers nor have we devised means to ensure their continuous professional growth. There was a time when teaching either at the school or at the college level was unattractive on account of the low salaries. But this cannot be said any longer. On the whole, present salaries and scales of college teachers are fairly comparable with salaries in other spheres of public life and it is reasonable to except a better quality of entrants, provided the selection criteria are fair and intended to serve educational interests and nothing else. It is well-known that other uneducational considerations have been influencing the recruitment of teachers. But there is every hope that the current crisis in the State will bring about conditions which will ensure that the best students and the most qualified teachers are available to education.

Assuming that we have recruited well-qualified teachers there is still the need to continuously keep them up to their tasks by giving them opportunities to be abreast of modern developments in their field of knowledge as well as in teaching methods. In U.S.S.R. it is said, every teacher has to undergo a compulsory in-service training every 5 years and unless he does so he is not eligible for promotion. It is to the great credit of the U.G.C. that it has been concerned very much with teacher improvement and has for several years now, initiated programmes for teacher improvement through its Summer Institutes in various subjects. One can hope for better teaching to result from these efforts.

Apart from such in-service refresher training there is no doubt that college teaching, like high school teaching needs professional preparation. It is strange that while teacher training has always been considered essential for a high school teacher it has not been thought necessary for a college teacher. This might have been true at a time when the students were few, their calibre high and their motivation strong. But in present conditions the teacher has to be equipped with all the arts and techniques of teaching in order to be successful. As far as is known professional training for college teachers has not yet been provided in any of the Universities, although it is one of the recommendations of the Education Commission. An exception is the teacher training course offered at the Central Institute of English for college teachers of English.

I must now refer to another important change that has over taken University education since independance. This is the change in the medium of instruction. Before 1947 English was the sole medium of instruction and examination all over the country with one exception. The Osmania University, as is well known, had tried Urdu as medium for some years and had then given it up. However, since independence, several Universities especially in the north have adopted the regional language as a medium of instruction. Every one will agree in principle that the mother tongue is the most natural and effective medium of instruction. Nevertheless the change has to be made taking into account the practical problems involved. Where decisions have been taken ignoring these problems the policy has come to grief. Also to be considered are the present and future needs of the students and their abilities. Taking all such factors into consideraion the wisest course would seem to be the provision of multi-media instruction in our Universities. In any case the students should have a freedom of choice in accordance with their abilities and aspirations.

In any survey of education during the last 25 years one necessarily has to refer to what is called educated unemployment. Unemployment in this country of course is not peculiar to the educated sections of society. It is even more rampant among the less educated people of rural and urban areas. However the problem of unemployment among University graduates is a much more regrettable phenomenon. It means that the time that the individuals have devoted to their University education often up to P. G. level, and the money their parents and the State have spent on them run to waste. Another aspect of this waste is that highly qualified products of our Universities are doing kinds of work which are totally unrelated to their education and abilities. As a remedy for this deplorable state of affairs one often hears about the need for job-oriented education. But surely before we can think of job-oriented education we have first to spot the jobs themselves — but where are the jobs that now remain unfilled and for which trained personnel are required? We therefore come back to the same conclusion as before that unless there is a quick expansion in the national economy and a spurt in industrial growth, very little can be done to relieve the problem of educated unemployment.

—*M. M. Ghani*

"We regretfully turned down your application because you're too highly qualified...."

UNIVERSITY GOVERNANCE AND IUB

The issue of university governance which has been analysed in a number of reports in recent years is not receiving the attention it deserves. University Acts are being re-drafted in different States some of which if passed into law would make it virtually impossible for the universities to discharge their responsibilities as institutions in our democratic societies. The Board therefore calls upon the various Governments in the country to consult academic opinion as organised under the auspices of the IUB, the UGC and the ICAR before proceeding with the passage of these Acts.

It goes without saying that there are the three principal bodies concerned with higher education in the country. To effect any change in the structure governance, pattern of financing and authority of the university in any part of the country without effective consultation with the concerned bodies should prove deterimental to the growth of higher education.

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Drought in Maharashtra

After being present for the 48th Annual Meeting of the Board held at Kolhapur on 5th and 6th February, 1973, I was asked to go to Poona, Ahmednagar and Aurangabad with a view to visiting some educational institutions there. The purpose of the visit was to study the impact that the severe drought in the State has had on the higher educational institutions. A brief report appears below

As you drive from place to place as far as the eye can see the arid land is parched, broken at several places due to intense heat looking almost waste land. Patches of green are rare and too far between. Even birds have flown away. The only men you set sight on are those working at relief camps started by the State Government where emaciated humanity can be seen crushing stones or carrying sand and pebble over their heads to widen a road or, at a few places, to build a bridge. It is reported that nearly 20 out of the 26 districts of Maharashtra are facing scarcity, which means that nearly 25,000 villages with a population of 20 millions are affected. In some parts of the State this is the third continuous year when the rain Gods have failed to oblige. As Professor V.M. Dandekar, Director of the Gokhale Institute of Politics and Economics at Poona observed when I met him on the 8th February, "the situation is already terrible...and, the worst is yet to come".

In Aurangabad Division alone nearly 68 lakhs people have been affected and over 4 million head of cattle have moved to distant Vidarba in search of food and water. This is the official estimate. In Sholapur the situation is worse still. Almost the entire district is in the grip of severe drought for the second successive year. In Osmanabad and Bihar neither the **Kharif** nor the **Rabi** operations could be carried out. And in all these places there is neither adequate fodder for cattle nor water for anyone.

In several places efforts are being made to dig wells deep enough to strike water. The water table itself having gone low, the efforts do not always prove successful. It is reported that at one particular village out of 10 or so places tried for a well, water could be struck at only one place at considerable depth. And ultimately the water turned out to be so muddy that it was impossible of being put to any use. It is in this respect that the ('worst is yet to come". During summer (May, June) water will almost be not available. Even as it is water to several villages is moved by tankers and in bullock carts.

How has all this affected higher education in the State? The composition of the student population provides the answer. In Ahmednagar, Aurangabad and Kolhapur almost 80 percent of the student population come from rural areas. Over 1/5 of the total student population of Marathwada is from Economically Backward Class communities. Economically Backward Class means that the total income of the household from which these students come does not exceed Rs. 100 per month. The economic condition in rural Maharashtra therefore becomes significant for the educational institutions. It can be said that almost all the students in the Marathwada and Shivaji Universities and a large number of students in Poona University are affected by the severe drought in the districts. Principal M.B. Chitnis of Marathawada University in a survey conducted found that 250 out of 680 students of the Pre-University class of his college taken up for a survey were breaking metal during the October vacations in relief works started by the Government. This could be true of several other college students elsewhere too. When the stomach is empty and throat is parched education is not uppermost in the mind!

The universities and colleges have to carry on the normal function of teaching and education. That apart they are also called upon to take an intimate interest in the life of the communities they serve. How are the universities in Maharashtra doing this in this situation of crisis? And how has the State Government tried to help the universities?

N.S.S. Students of Ahmednagar College busy in percolating tank in an affected village

Government Help

The State Government has notified the universities that the examination fees to be paid by the students coming from the scarcity areas are to be waived and the amount will be reimbursed to the universities and colleges by the Government. Further, universities and colleges have been asked by the State Government to accept applications for examinations from students who could not send the same in time. Acceptance of late applications does cause several administrative difficulties but these are being cheerfully borne.

With a view to helping the students to return home early the universities have decided to advance the dates of examinations by nearly a month. In order that the entire syllabus is covered, extra classes are held.

Voluntary Effort

When I discussed the matter with Principal Barnabas of the Ahmednagar College and Prof. Hulbe and his collegues in the Centre for Studies in Rural Development of the college, I discovered what a lot voluntary effort can do in such situations. The college is running a free mess for about 250 of its students who are badly hit by scarcity conditions. The mess is being run for the last 4 to 5 months. (In Marathwada also a similar number of students are having free meals in a mess run by the university.) The students of Ahmednagar College move out into villages nearby for various projects. They have dug two community wells and with the help of that water they have not only grown vegetables but have also grown grass to provide fodder for the cattle. They have also dug a percolation tank. Another group of students from the college have staged two Marathi plays, the proceeds of which have gone for drought relief work. At a central village seven miles away from the college, clinics are being run for two days in a week. Six local doctors provide medical expertise in these clinics and on an average about 150 patients attend them everyday. The students help the doctors in administrative duties. The college has also undertaken feeding programme for about 5,000 children below the age of 6 in six villages. Parents of these children are away working at relief camps!

In Marathwada and Shivaji Universities the Principals of the affiliated colleges have been requested by the University to cut all cultural programmes, gatherings entertainment programmes etc. and divert the funds so available for meeting the needs of the drought-hit stu-

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Experiments in Initiative

The Spicer Memorial College, Poona is a different institution in more ways than one. The most significant is that it is not affiliated to any university in India, although it was established at Poona in 1942.

Spread over a campus of 70 acres, the college has four-year and five-year programmes, at the successful completion of which the college awards its own degrees In keeping with its philosophy, namely "the harmonious development of the physical, the mental and spiritual powers", the college has so devised its programmes that every student has to take certain courses in crafts, music, applied arts, industrial arts etc. in addition to courses in more academic disciplines.

The degrees offered by the college are Bachelor of Liberal Arts, Bachelor of Elementary Education, Bachelor of Business Administration, Bachelor of Applied Arts (all four year programmes), Bachelor of Theology and Bachelor of Secondary Education-- five year programmes.

A unique feature of the college is the involvement of the students in its running. Every student is expected to work for a minimum of 5 hours a week for the college.

The college has its own press, bakery, metal industry, photo studio, switch assembly, dairy and poultry farms etc. In all these students get enough opportunity to work. Similarly, the cafeteria of the college is run by the students except for a couple of professional people who cook the edibles. Also the entire estate and the buildings are kept clean by the students. For the work that students do *in all these* spheres the college makes payment on an hourly basis

Another feature of these various vocational departments is that these are more or less run as business units. It is understood that the press is able to handle work of such diversified organisations in Poona as the Hindustan Antibiotics Factory of Pimpri, the Ordinance factory etc.

There are no 'peons' in the college. Smoking, alcohol and meat are all taboo in the college even for the faculty! The President of the college Dr. M.E. Cherian is proud of all these and *his college*. Justifiable pride indeed.

In his Welcome Address delivered at the inauguration of the 48th Annual Meeting of the Inter-University Board, Dr. A.G. Pawar, Vice-Chancellor, Shivaji University, made several references to initiatives taken by the university in the matter of student participation. Extracts from his speech are given below:

"So early as 1964 we started the *Vidyarthi Kalyan Mandal* on which there is one student representative *from each of the* Affiliated Colleges in the five districts of the Shivaji University area and the students started participating in the life of the university in a general way. When the student representatives attend their meetings they are paid T.A. and D.A. not so much to give them money as to enhance their dignity as student participants in the life of the institution. The very first thing the *Vidyarthi Kalyan Mandal* did was to build a home of their own—a student home, built by the students themselves by their own labour. The engineering college students (we have two Engineering Colleges affiliated to the university) made plans of the building and students from colleges in the five districts of the university area came in batches during vacation and built the home. They dug the foundation, made bricks, built walls, laid slabs under the direction and supervision of the engineering staff and completed the building of eighteen rooms on the ground floor and eighteen rooms on the first floor. Even the colouring of the walls was done by the students. Material was supplied by the university. At present fifty M.A. and M.Sc. students who are poor but deserving, are provided for, in this home under the Earn and Learn Scheme. They work for three hours a day *for* five days in a week on the university farm. They also make bricks. We have given them a canteen and a flour mill and they are managing them both profitably. Whenever we have camps, conferences or seminars during vacations it is the students who generally do the catering services and do even menial work. By this they earned about Rs. 14,000/- in the past two years. and earned about the same amount from their sugar-cane crop during that period.

"We *have over* 500 men students staying in the hostel in the university premises. There is no rector, *no warden and no contractor*. The students run the *hostels through* their own committee, viz. a Mess Committee and *a Discipline Committee* Two Study-rooms which accommodate about 550 students are mainly managed by the students themselves.,

"So early as 1964 we started Orientation Courses for college teachers and are conducting one such course every year. The high school is still the weak link in our educational system and this is mainly because of the poor teaching ability of the high school teacher particularly in subjects like English, Mathematics and Science. I organized a Conference of the Head-Masters in the university area and with their assistance prepared an intensive course in these three subjects and we conducted three months coaching classes for the high school teachers. We have instituted single-subject diploma courses in English, Mathematics and Science for the benefit of the school teachers. We have been holding Conferences of the Principals of Affiliated Colleges and so also of the Managements of these colleges.

"With a view to increasing the employment potential of our graduates, we are conducting a six-week course in which not only theoretical instruction is given but practice-teaching is done by taking the candidates to different offices in the City. The course has been so popular that we are running it practically continuously . . . . .

". . . The scheme of "Adoption of Villages" is in *existence in the university* and many Affiliated Colleges have adopted villages and are trying to improve their conditions. The university has yet another scheme which is described as "Taking the University to the people, making them education-minded and educating the parent". Under this scheme *Gram Shibirs*, that is, village seminars, are conducted and the Vice-Chancellor has been personally conducting these village seminars."

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dents. The students have also undertaken different projects like road construction, digging of wells in college premises etc. A few hundred cases of students not belonging to economically backward class categories for exemption from payment of examination fees is also under consideration in Marathwada University. And the teachers of the Shivaji, Poona and Marathwada universities have decided to contribute one day's salary per month for drought relief work. The Vice-Chancellor of Marathwada University has decided to pay 10 percent of his salary as his personal contribution for this work.

Teams of doctors from medical colleges in Bombay and Poona are on tour in the districts visiting various relief camps to provide medical aid. The main problem however is that of medical supplies. Most of the cases of illness are due to malnutrition, which means that medical requirements are not merely antibiotics but also vitamins.

Colleges

While the universities are doing all they can, in the given circumstances, for maintaining the teaching and examination schedule and at the same time in helping the community, it is gathered that in the colleges the situation is not all that happy. In some colleges it is understood many of the students affected by drought have returned home with a view to being of help to their families. These students would however return to the colleges for taking the examination.

Conclusion

In almost every five years a season or two of drought in Maharashtra is nothing unusual. In the past things could have been different. But 25 years after independence not to have planned for avoiding the miseries that accompany a severe drought is a sad commentary on the capacity of the State Government. But perhaps more important is another fact that deserves much greater attention. There are four universities exclusively devoted to agriculture in Maharashtra against only one in all the other States. These agricultural universities have a very positive role to play in this behalf. For example there are irrigation projects that have to be developed and taken up on a priority basis for bringing water required for human and cattle consumption. Again there are the farming techniques to be adopted in an area where water is more or less always scarce. Furthermore there is the problem of conservation of water. What are the various projects that require to be taken up? The answer for this question cannot be found by the officials in the secretariat at Bombay who may not even be technically qualified for the purpose. It is more intimately the concern of the agricultural university. If the situation continues as it is today, the finger will increasingly be pointed to agricultural universities rather than to the State Government. They have therefore to come up almost immediately with appropriate plans both short-term and long-term.

M. S. RAMAMURTHY

"WHITE REVOLUTION"

A three-day workshop on All India Coordinated Research Project on cattle was inaugurated at Jawaharlal Nehru Krishi Vishwa. Vidyalaya on February 12. The workshop was held under the auspices of the Indian Council of Agricultural Research and the university. It was attended by distinguished scientist from all over the country. While addressing the seminar, the Vice-Chancellor, Dr. C. Thakur, stressed the need to bring about a "white revolution" to fight the national problem of wide protein gap in the predominantly vegetarian country. Milk continues to be the main source of good quality protein. It was paramount to improve the quality of cow which could give at least two to three times more milk than the present ones. Dr. Thakur said that the upgrading and selective breeding in the cattle in the past decades have not resulted in increase in milk production. In view of the wide land reform contemplated in the country, the need of producing high milk yielding cow has attained special significance and a new dimension. Mixed farming system being the solution under small land holdings, the farmers demand a cow which is productive and economical. Dr. Thakur suggested a planned multi-disciplinary approach to the whole problem.

WORLD BANK TO ASSIST AGRICULTURAL UNIVERSITIES IN TAMIL NADU AND KERALA

A team of experts from World Bank is expected to arrive in India during May and June this year to make a detailed survey and to collect data for the development of agricultural education in Tamil Nadu and Kerala. A three-man advance team headed by Dr. C.T. Ingold, is already making a preliminary tour of Madras, Coimbatore, Madurai, Trivandrum and Trichur. The quantum of assistance would be decided after the visit of the officials of the World Bank and discussions with I.C.A.R. It is expected that aid would be sanctioned not only for education research and extension but sufficient technical assistance would also be made available.

Last year, the World Bank provided aid under a similar project to the extent of $ 12 million to Assam & Bihar State.

SEMINAR ON MIGRATION PATTERN

The Department of Anthropology of Ranchi University organized a Seminar under the joint auspices of the Indian Anthropological Association, Council of Social and Cultural Research, Bihar and Ranchi University Anthropological Association on the Migration Pattern in South Asia with special reference to India.

Dr. Myron Wainer, Professor of Political Sociology, Massachusset Institute of Technology, U.S.A. during the course of his address outlined the features of population migration from one cultural. linguistic region to the another and dealt with the various implications involved in the process. He confined his talk to the situation prevailing in Assam and discussed the factors responsible for attracting people from other regions and areas having widely different cultural background like the tribals of Chotanagpur, Chinese labourers, Bengalis, Marwaris and others. He also analysed the fear and tension which the migration generated in indigenous people. Dr. Wainer specially emphasised that the establishment of new economic opportunities within ar area does not necessarily benefit the local populations. The inability of indigenous population t effectively compete with migrant is the result of a complex set o historical, social, demographic an cultural circumstances. The ind genous population, especially th politically articulate and numer cally expanding urban educate class seeking middle class emplo ment sees its failure to achie equality of income as a con quences of political factors. T indigenous elite, attempts to u political instruments for equali ing the position of the Assam but the indigenous leadership not adverse to form coalitio with migrant communities and prepared to support it in its p tical objectives and in spite government policies there is evidence that migrants h ceased to enter Assam or th descendants have began to le the State.

In view of economic growth the State of Assam, according Dr. Wainer, there seems to three alternatives. Firstly, growth in Assam may remain with few new employment op tunities. Secondly, even w there is an increase in em ment opportunities for local samese, regional develop might bring even like migr into the State and thirdly rants communities effected by ferential politics might retali

NEHRU UNIVERSITY HONOURS 'FIRST CITIZEN OF WORLD'

Jawaharlal Nehru University conferred the honorary degree of Doctor of Laws on Dr. Kurt Waldheim, UN Secretary-General on his recent visit to New Delhi. He was described as the first citizen of the world and was praised for his selfless services to the cause of mankind. Dr. Waldheim, while thanking the university for this honour said that it was also an honour for the United Nations. He was hopeful that under the dynamic leadership of Mrs. Gandhi, who happens to be the Chancellor of the University as well, India will play a crucial role in the solution of the problems confronting this sub-continent. Mr. Parthasarathi, India's former permanent representative at United Nations and the Vice-Chancellor of the university said that Dr. Waldheim had acted without fear or favour with a high sense of responsibility. He had dealt with intricate issues facing the UN with patience, tact and imagination.

EDUCATIONAL SYSTEM DISCUSSED AT KANPUR SEMINAR

The Indian Institute of Technology, Kanpur, organized a two-day seminar on Science and Technology in collaboration with the National Committee for Science and Technology. Mr. C. Subramaniam, Union Minister for Industrial Development and Science and Technology, emphasised the need for a general culture as against the scientific culture of the West. He wanted science and technology to be developed in such a way that it plays a vital role in the identification and solution of rural problems.

Dr. Gunnar Mydral, the noted economist from Sweden called upon the scientists and technologists to apply their minds to local problems and conditions. He stressed the need for a "revolutionary reformations of the educational system of the country. He complained that the economist had ignored and neglected the vital role of science and technology, treating it as an extra input rather than as an organic part of developmental efforts. He cautioned against looking up to western models for guidance. They attached the importance of those things which have less importance in India. According to him, there was a need for adjusting the basis and application of science and technology in India considering the fact that everything in the country was connected with poverty.

He expressed himself against sending students abroad for higher education in science and technology, because when they come out of these institutions, they would be unsuitable for the Indian conditions. But he was in favour of the exchange of scientists at higher level.

Prof. Rais Ahmad, Dean, Faculty of Science, Aligarh Muslim University presented the report of the group discussion on education and scientific research. He thought that the present education was anti-development and belonged to the colonial and feudal era. He complained that the allocation of funds for education was inadequate.

NEW STUDENT'S CENTRE FOR BOMBAY

Mr. A.N. Namjoshi, State Education Minister laid the foundation stone of the five lakh rupees building for a students' centre at Vidyanagari, Bombay University campus at Kole-Kalyan, Santa Cruz.

The building is expected to be ready by June and the normal feature would be the participation of students in this developmental plan. The Minister urged the university to evolve postgraduate diploma courses to meet the increasing needs for trained personnel by local industries

UNIVERSITY PROBES SALEM PROBLEMS

Dr. S. Rangaswami, Vice-Chancellor of Tamil Nadu Agricultural University, stressed the need to set up a research station in Salem-Dharmapuri region to study the cropping pattern of the region. The most of the work in Tamil Nadu carried so far was not useful for dry tracts. In Salem alone there are 60,000 acres of hilly land available for vegetable cultivation. Dharampuri, too, had its developmental potential. The Agricultural University recently set up in the State, had special role to play. He also offered help for the survey of paddy and other crops of the region.

ORDINARY PAPER FOR X-RAYS!

According to a report from U.S.S.R., a new technique of electric radiography has been developed by Soviet doctors and engineers. An ordinary paper can now be used for X-ray photographs, which can be produced ten times as fast as before and at a tenth of the cost. The image obtained is sharp and resembles a drawing. This new technique would be useful in diagnosing diseases of soft tissues, bones, the heart, lungs and alimentary canals.

JOINT EXCAVATIONS OF NAGPUR AND MARATHWADA UNIVERSITIES

The excavation work at Bhokardan in Aurangabad district has thrown some interesting light on early history of Deccan. The project is a joint venture of Nagpur and Marathwada Universities. A *rich treasure* consisting of antiquities and coins of immense archaelogical value have been struck. A number of pendants, earstuds, earings, clay bangles, finger rings, beads and unique pieces of ivory have been found. Interesting evidence in respect of Roman antiquities in the form of Roman glass, pottery and imitations of Roman pulley which show that flourishing contacts were established with the Roman Empire in the ancient times. Bhokardan has been referred to in the inscriptions at far off Sanchi (in Madhya Pradesh) and seems to have a place of importance due to its proximity to Paithan ancient Pratishthana, capital of Satavathans, who were the first emperors of Deccan.

According to Dr. Deo of Marathwada University, Bhogwardhana was situated on the famous ancient trade route connecting Ujjain in the north and Varatishtan in the South. But the most unique and sensational find was a beautiful ivory figure of a lady with two female attendants. The figure is exquisitely carved and is one of the finest example of the sculptures of human form. Besides, a number of beautiful terracottas and toys have also been excavated. The universities of Nagpur and Marathwada will exhibit the excavations at Bhokardan in a well organized rotation.

POSTGRADUATE INNOVATIONS

The Academic Council of the University of Bombay appointed a committee to consider the suggestions of the Department of Economics regarding the conduct of the postgraduate examinations particularly in the Faculty of Arts. Under the new scheme of examination to be implemented from the next academic year, in place of a written theory paper of 100 marks as at present, there would be two examinations: (1) an internal assessment for 60 marks, which will be based on class assessment, critical review of important books, report of field work and oral test and (2) written examination of 40 marks on the traditional pattern.

A candidate would be required to obtain a minimum 40 percent in the internal assessment and 30 percent in the written examination. Under the new experimental pattern of the M.A. examination, the attendance of the post-graduate lectures would be optional. It is hoped that a convention would be established under which the written examinations will be conducted as far as possible by the internal examiners alone.

The detailed distribution of marks in each of the paper prescribed in the M.A. examinations for the category of internal assessment is being worked out by the respective postgraduate departments and committees for recognition of teachers keeping in view the requirements of each subject.

PUNJABI UNIVERSITY PLANS NEW COURSES

The Syndicate of Punjabi University has decided to provide facilities for research in Space Physics. There is also a proposal to instal a 24-inch telescope in its Department of Physics. The University will also introduce courses in microbiology, cell biology and genetics on inter-disciplinary basis. The Department of Geography has been upgraded to provide adequate facilities for postgraduate courses in Geography. A new area study centre will be started. Neighbouring countries in Central Asia would be given special emphasis. It is proposed to undertake a socio-linguistic survey of villages round the university campus with a view to drawing up a programme of eradicating social evils from the rural people.

GEOCHEMISTRY SYMPOSIUM

The Geology Department of Patna University held seven-day International Seminar on recent researches and applications of geochemistry in collaboration with the Indian National Science Academy, Geological Survey of India, National Mineral Development Corporation, National Geophysical Research Institute, Hindustan Copper Limited and Indian Geo-Science Association.

The seminar is financed by UNESCO and is being held in India for the first time. The purpose of the seminar is to evaluate the recent researches in the field of Geo chemistry. Prof. Ken Sugawara of Japan inaugurated the seminar and eighty scientists from various foreign countries were present. During its seven day session, discussions on the application of geochemistry to life, geo-chemistry of rock-alteration and lateritization, geo-chemical prospecting for hidden deposits, pre-cambrian geochronology and general chemistry were held.

Book Review

Krishan Kumar. Research Libraries in Developing Countries. *Vikas Publishing House Pvt. Ltd., Delhi, 1973. Rs. 50.00*

This is perhaps for the first time that an empirical study in the field of libraries on such a wide canvas has been attempted in India. Prof. Kumar presents an exhaustive survey of the social science research libraries in the developing countries of India, Pakistan (pre-Bangladesh), Malaysia, Singapore, Indonesia, Thailand and Taiwan. There are a number of things which these countries of South and South East Asia share in common. With the singular exception of Thailand, all these countries have only recently become independent. They are all characterised by multi-racial, multi-lingual and multi-cultural tradition bound societies. There is a general lack of resources and the traditions of schoarship are yet to be built up. But all the same there is a definite urge for modernisation of social structures, cultures, political lives and outlook. It is these common features of the developing countries that make possible a comparative study and analysis of the situation.

,The book is in two parts. The first part deals with social science research libraries in the developing countries of the South and South East Asia. It comprises a comparative and interpretative survey of library scene of the region in terms of selection and acquisition of materials, organisation of materials and provision of services, library education, role of various organisations and associations, and the research and university libraries of the countries under study. Most of the research libraries are unable to provide adequate collections and services to deal with the rising demands and increasing number of researchers. This is primarily because these have developed without long range plans and suffer from paucity of resources. The hope for the future lies in the increasing measure of government response which has of late been in evidence. But still the need for arrangements for sharing resources like co-operative acquisition, inter-library loan, union catalogues and reprographic services need hardly be emphasised. Another problem that the libraries in the region face is the shortage of suitably trained personnel. Libraries trained in the advanced countries are not rooted in local conditions. In this context the idea of a regional library school put forth by Prof. Kumar is sound and need be pursued.

The second part of the book is comprised of the findings of a Users' Survey of the Sapru House Library—Joint library of the School of International Studies, Jawaharlal Nehru University and the Indian Council of World Affairs. It is a pace-setting case study of a premier social science library of the country and delves into every aspect of its functioning. More than anything else, its value lies in providing a model for an objective assessment of the existing *institutions* which is a basic pre-requisite for any perspective planning. The methodology employed is that of a questionnaire supplemented by personal discussion with the respondents. The result is a body of statistics that provides directions for further development of the library.

Chief merit of the present work lies in the statistics that it makes available for further research. The data is so interwoven in the texture of the study that it does not sacrifice readability but substantiates every argument. Prof. Kumar has indeed succeeded in a good measure in achieving his objective to present and analyse comparative data concerning social science research libraries.

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Entrance Examination for admission to the first year class of the five year integrated programme in Mining Engineering, Applied Geology, Applied Geophysics and Petroleum Engineering for the Session 1973-74 commencing on July 2, 1973 will be held on Friday, the 11th and Saturday, the 12th May, 1973.

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Applications in the prescribed form complete in all respects should reach the Registrar, Indian School of Mines, Dhanbad (i) by March 31, 1973 for admission to the first year programme and (ii) by the June 14, 1973 for direct admission to the third year programme in Applied Geology and Applied Geophysics.

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2. **PHYSICAL CHEMISTRY. V. Kireev pp. 572, Rs. 11.50 (Mir Publishers, Moscow.)**

The present volume is intended primarily as a short course in physical chemistry for engineering students not specialising in chemistry, for whom a correct understanding of the nature of phenomena is of greater importance than a capicity to make formal computations of various physico-chemical quantities. It will also be found useful by non-chemists. engineers and technicians, and by chemistry teachers of secondary and technical schools. In this second edition. old material has been deleted and additional material on the properties of solids and of gases and crystals at very high temperatures has been introduced. The material relating to the nature of chemical bonds in molecules and crystals and the properties of water has been slightly revised and a survey of the donor-acceptor bond included. Material on very low temperatures (super-conductivity) and on the experimental study of molecular structure has been added.

New designations of certain physical constants and methods of recording processes have been adopted in accordance with the recommendations of the IUPAC, while the new values of physical constants recommended by Cohen and Du Mond (1965) have been employed.

Prof. Valetin Kireev, D.Sc. (Chem.) holds the chair of chemistry at the Kuibyshev Civil Engineering Institute in Moscow. In addition to his varied teaching duties, he devotes a great deal of time to research into the theoretical and applied problems of chemical thermodynamics and has to his credit over 100 publications in this field. The results of this work are widely applied in industry and in research and development. Prof. Kireev has been the editor of several collections of original Russian and translated works in the field of physical chemistry and chemical thermodynamics. His own course of physical chemistry has been published in various editions in over 2,50,000 copies and has been translated into Chinese, Czech, English, French and other languages.

Prof. V. Kireev is a member of the scientific advisory councils on chemistry and chemical thermodynamics of both the USSR and the RSFSR Ministries of Higher Education.

He holds the title of Honoured Scientist of the RSFSR and is a State Prize winner.

3. **PROBLEMS IN THE THEORY OF FUNCTIONS OF A COMPLEX VARIABLE, L. Volkovysky, G. Lunts and I. Aramanovich, pp. 330, Rs. 6.00 (Mir Publishers, Moscow)**

This collection of problems in the theory of functions of a complex variable is mainly intended for students in departments of mathematics, mechanics and physics, and for engineering courses with mathematics as an additional subject, but embraces a cycle of problems falling outside the normal syllabi. Certain of these can serve as material for student projects and as problems for course seminars.

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4. **SOVIET PLANNING: PRINCIPLES AND TECHNIQUES, pp. 193, Rs. 0.65 (Progress Publishers, Moscow)**

This book has been written by a group of scientists associated with the Economic Research Institute of the State Planning Committee, USSR Council of Ministers, A.I. Anchishkin, R.A. Belousov, A.N. Yefimov, V.N. Kirichenko, P.P. Litvyakov, Y.M. Shvyrkov under the general guidance of A. Yefimov and has been edited by Y. Shvyrkov.

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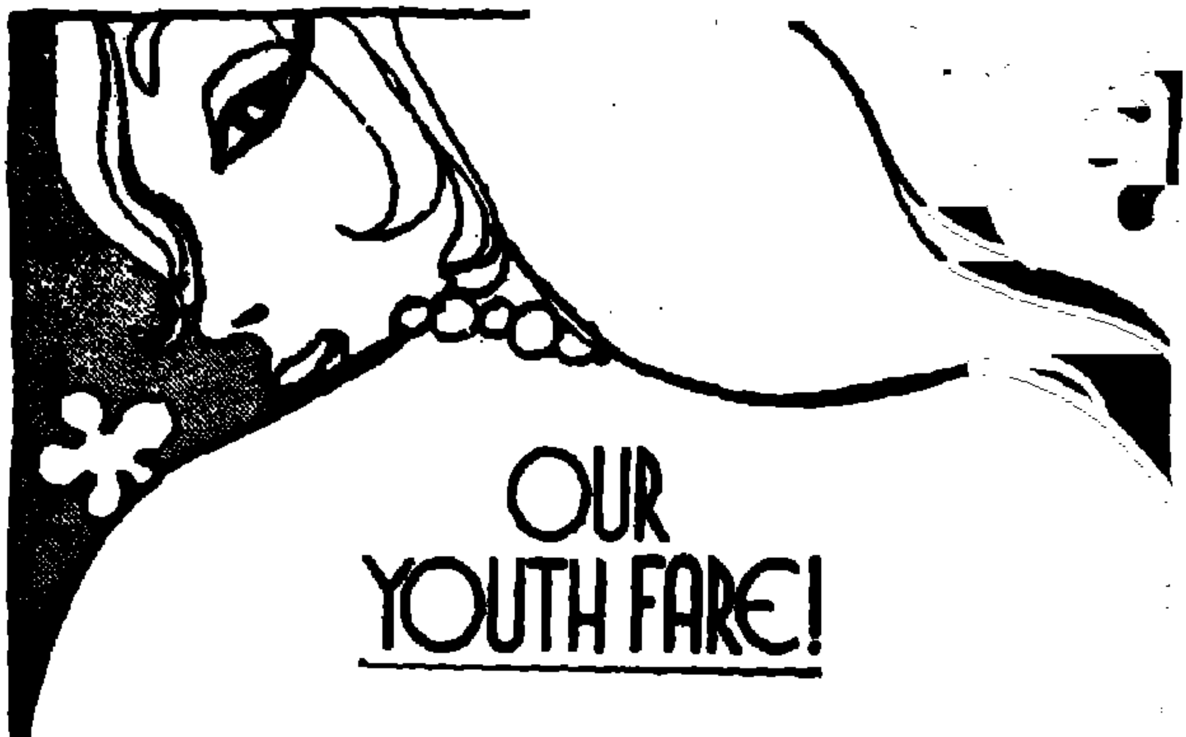

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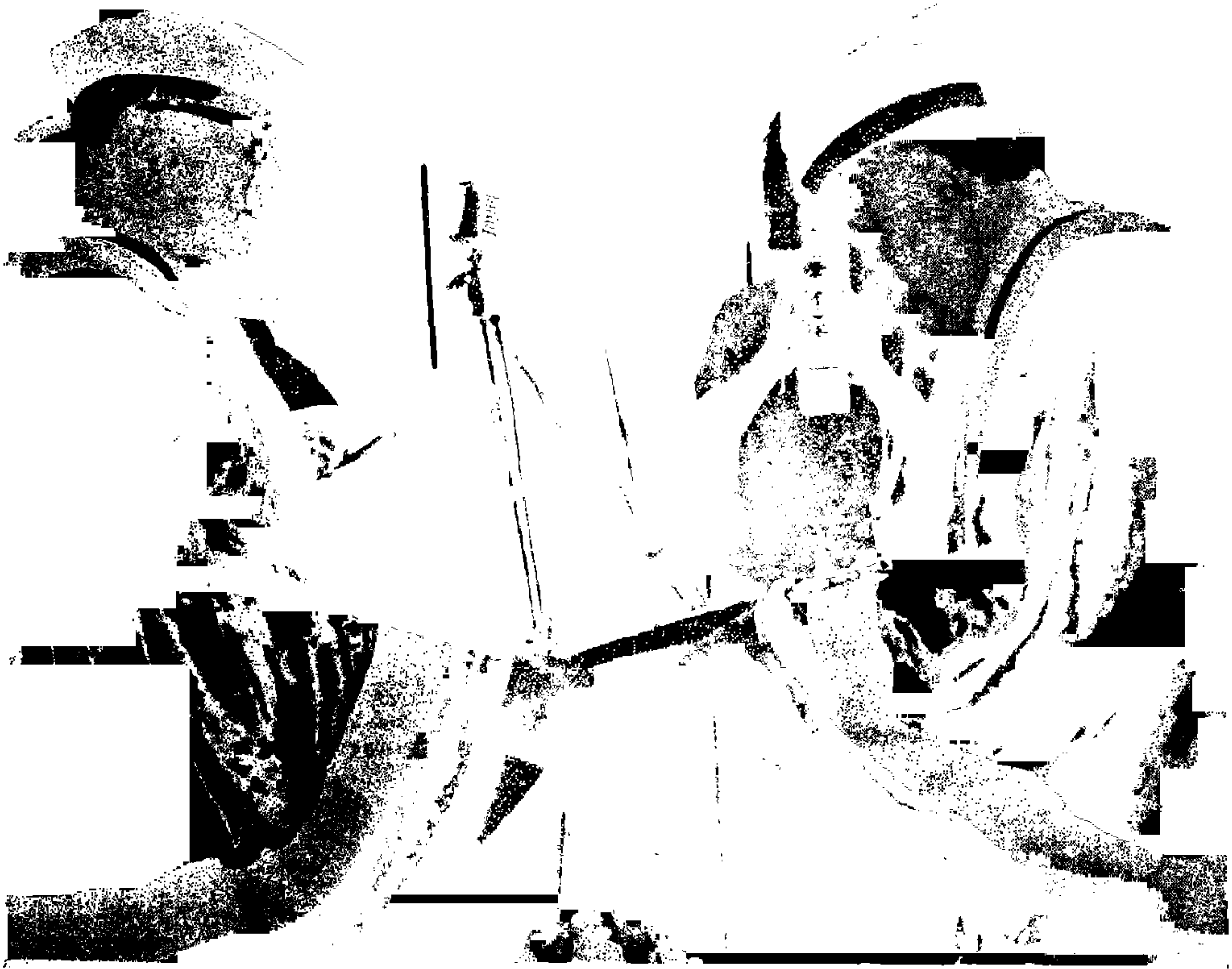

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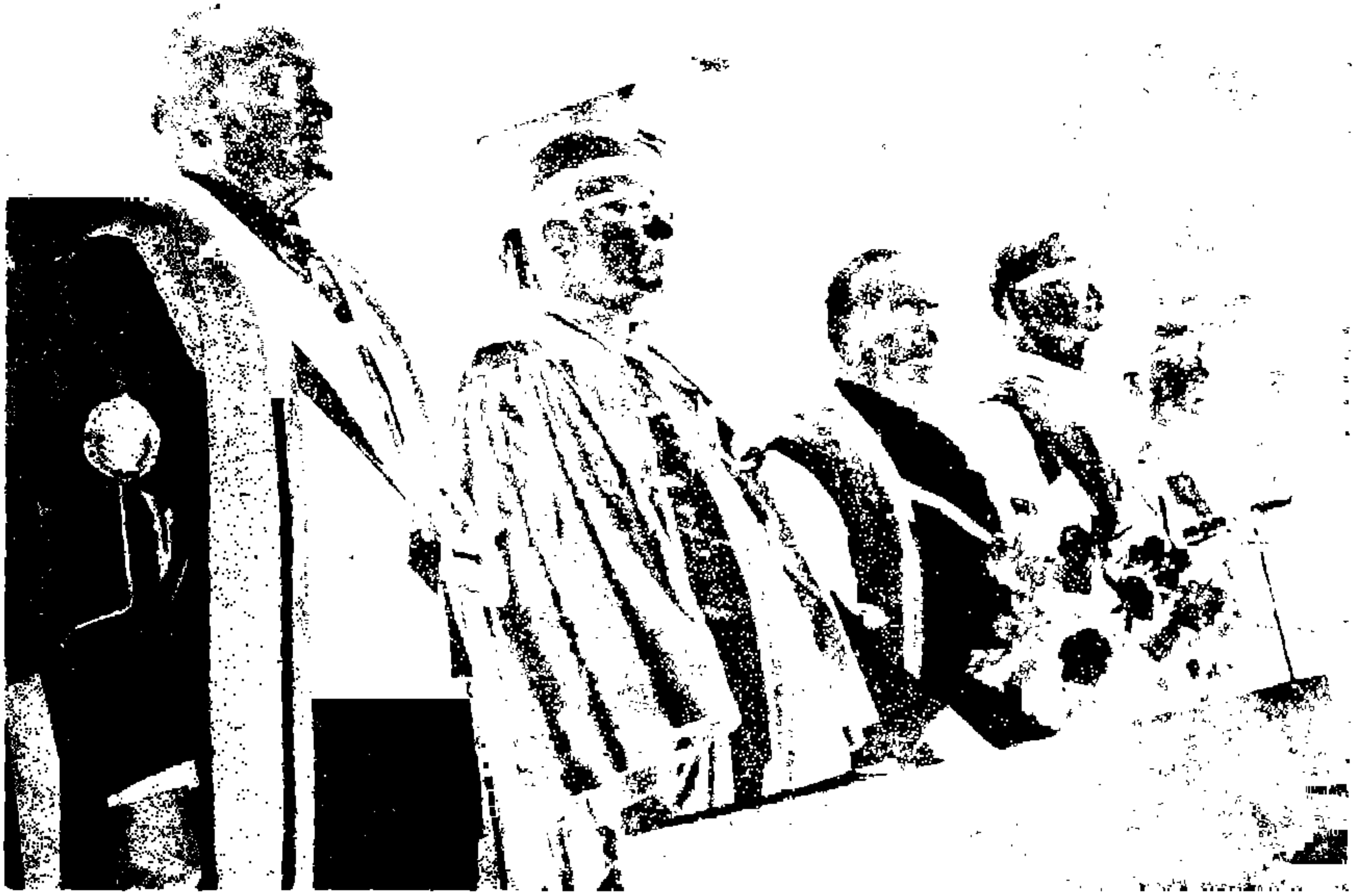
Fourth Convention of Agricultural Universities

The fourth convention of Indian Agricultural Universities was inaugurated by President V.V. Giri on March 21, 1973 at Hissar. The convention continued till 24th March. Mr. Giri in his address pleaded for a new design for rural living where advances in farming and technology should be utilized for the advancement of the interests of the farmers. In a poor country like India large portion of the tax payers money was being spent on these centres of higher learning in the hope that their sustained efforts would help the people to convert the natural wealth into job income and food.

The convention was attended by over a hundred delegates from the fifteen agricultural universities in the country. The representatives of the Indian Agricultural Research Institute, the Indian Council of Agricultural Research and the Union Ministry of Agriculture also participated in the deliberations. The convention was regrouped into four sections—research and extension, resident instruction, student affairs and general administration including finances — to enable the participants to give more time to the various issues. The Union Minister of State for Agriculture, Mr. A.P. Shinde addressed the plenary session of the association. He called upon the agricultural scientists to achieve self-sufficiency in food as quickly as possible and urged them to raise the agricultural production to the maximum. He warned the universities against the production of pseudo-scientists and wanted a rapport to be established between agricultural universities and the state departments of agriculture.

The convention made some important recommendations. Considering the importance of providing adequate and timely technological support and extension cover to small farmers, it was suggested that in every agricultural university, an institute of agricultural technology, training and education be established and in every district, an agricultural polytechnic be created. These institutes should offer short-term agriculture technology courses to young farmers and to those interested in starting agro-business. The refresher courses for farmers, extension workers and teachers could also be arranged there. The convention was not in favour of the proliferation of agricultural graduates and post-graduates. It was recommended that the enrolment programme of universities should be linked with the technical manpower requirements. The candidate should be properly screened through a combination of practical and theoretical training and testing for a short period of apprenticeship. Those having the aptitude for practical farming and the necessary mental and intellectual equipment should be enrolled for the degree programmes while those lacking intellectual calibre, but having an aptitude for practical farming could undergo short-term courses in these institutes and become middle level technicians. The State governments were requested to set apart some land in selected areas out of the surplus land for settling the agricultural graduates and animal husbandry practitioners.

With a view to maintain high standard of education, it was suggested that the association of agricultural universities be given a statutory status on the lines of the Indian Medical Council. As in the States, the institutions of national honours, societies of agriculture, veterinary medicine, animal sciences, basic sciences and humanities could be formed under the auspices of the association. These societies could help to eva-



President Giri with the Chancellor & Vice-Chancellor at the Inaugural function of H.A.U., Hissar

luate the standard of teaching and examination in the member universities.

It was recommended that ICAR should invariably assess the need for starting a new agricultural university by State government through a team of experts.

To promote healthier relationship between the ICAR and the universities, it was proposed that monthly meetings of the vice-chancellors of these universities and ICAR., on the pattern of the University Grants Commission, may be held to discuss matters relating to teaching, research, extension and development. It was suggested that the visiting I.C.A.R teams to the agricultural universities should be more effective and be authorised to make concrete recommendations with regard to the various development requirements of the universities at the time of their visit It was recommended that before final decisions are taken up by the government of India on the report of the National Commission on Agriculture, an opportunity be given to the State governments and the agricultural universities for thorough disclussion before their views are sent to the Central Government.

In respect to the financing of the universities, it was urged that adequate foundation grant should be given to the universities and interest accruing on this grant should be treated as a part of the reserve fund to be utilized by the universities in case of emergency. With regard to the I.C.A.R. grants, it was suggested that a more rational method should be adopted for the release of development grants keeping in view factors such as the needs, population, areas to be served, performance of the institutions. The convention also suggested various measures for encouraging self-employment of the agriculture graduates.

Mr. A.L. Fletcher, Vice-Chancellor, Haryana Agricultural University was elected as the President, Dr. M.S. Pawar, Vice-Chancellor, Mahatma Phule Krishi Vidyapeeth as the Vice-President and Shri V.R. Mehta, Vice-Chancellor, Gujarat Agricultural University as the Secretary of the Association for 1973-74.

Problems of Technical Education

S. K. Dutta

Technical education in India received a great impetus during the Second Great War when India had to produce goods for prosecution of the war. After India became free, it was realised that the strength of our nation-building projects as also the security of the country depended upon the quality of the technically trained personnel. The creation of the All-India Council of Technical Education in 1945 and the report of the Manpower Committee in 1947 had far-reaching influence on technical education. At the time of preparing the Second Five Year Plan, the Planning Commission appointed the Engineering Personnel Committee in 1956, which worked out a general assessment of shortages of supervisory and higher grades of engineering personnel. The Committee's finding was that the demand for engineering personnel far exceeded the supply and it estimated the short supply to the extent of 1800 graduates and 8000 diploma-holders. A considerable number of engineering colleges came into existence during the next few years and the existing institutions were expanded. The Indian Institutes of Technology were established with the object of training of higher grade engineers required for the development of the country. After a decade the position was that 1800 engineering and technological graduates and 16500 diploma-holders were produced by the Indian Universities in 1971. By this time the ominous trend of unemployment among engineers became very prominent and the number of unemployed engineers rose to many thousands. Our planners, whose task was to foresee the needs of industry and to provide the appropriate training programmes on an adequate scale and at the required levels, went wrong somewhere.

What are the main reasons for the unemployment of engineers? Firstly, cooperation between industry and educational institutions is lacking in our country. Technical education is not organised to provide to industry a product immediately ready to assume occupational responsibility. The academic preparation and the analytical faculties of the Indian students are comparable to those in advanced countries but they lack industrial practice. In the U.K. a system of training of engineers by industries was introduced by the Industrial Training Act. A levy of 2½ per cent of the wage bill is imposed on industry for providing training facilities. It is essential that our colleges and institutes of technology become much more concerned with the needs of industries. As far back as in 1912 the Government of India asked Lt. Col de. V. Atkinson, the then Principal of Roorkee College and Mr. T.S. Dawson, Principal of the Victoria Diamond Jubilee Technical Institute, Bombay, to carry out an enquiry to bring technical institutions into closer touch and more practical relations with the employers in India. They reported that there was no opportunity for the employment of high grade engineers whose education was mostly of theoretical character. The best method of training engineers, they advised, was by a course at a well-equipped institution followed by apprenticeship in industry/works. They further said that the education given in the institutes should be essentially practical. After more than half a century and even after India has become independent, these recommendations have yet to be carried out.

Our system of technical education is top heavy. Many graduate engineers do the work which can be done by technicians. In Western countries more and more emphasis is being laid on the training of middle-level technicians. Unfortunately in India we do not appreciate the skill of a person unless he has a degree. On the other hand, it is the general view, particularly of the industrialists, that our degree holders lack practical experience and are not fit to carry professional responsibility. While quantitatively our achievements in technical education are not insignificant, qualitatively they are poor. So a peculiar situation has arisen. On the one hand, there is unemployment of engineers. On the other, it is difficult to get the right person if you need an engineer. We hear of falling standards in University education. If an attempt is made to improve the standard by restricting admission to the institutions or by improving the courses resistance comes from various quarters. If bold steps are not taken to remove the deficiencies of our technical education by constant efforts to design or redesign courses to suit the changing needs of industry and relating enrolments in the technical institutions to the manpower needs of the country, it will be impossible to meet the needs of industry and public services and to produce the right type of engineers who are needed.

Engineers, in the past, in this country were largely employed by the Government or the public undertakings. Public works, no doubt, have an important part to play in creating new jobs. I have already said that engineering colleges must work in close cooperation with industry. However, now it is recognised that a large number of engineers can gainfully employ themselves in what may be called selfemployment schemes. This would include the development of small-scale industries, creation of consultancy bureaus and other types of technical services by the graduate engineers. Engineering education should be similar to medical education. For example, a physician during his training is associated with actual application of his knowledge on patients in a hospital which is generally attached to a Medical College. This type of training helps him in achieving the re-

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Extracts from the third convocation address of Punjab Engineering College, Chandigarh delivered by Dr. Dutta, V.C, Kurukshetra University.

quired competence and gaining confidence in giving professional advice and conducting professional practice solely by himself. I am glad that the Punjab Engineering College has recognised the importance of practical training for under-graduates so that they can establish their own industries. I understand that a course on industrial entrepreneurship has been organised recently at this College.

The impact of modern engineering upon the social, economic and political fabric of the society in the last decade has been profound. Automation has modified the meaning of work. Aeronautics has transformed our conception of time and distance. Military weaponry has altered the nature of international affairs. The engineers who are graduating today would have to face and to work under a still higher degree of technological development. They would naturally have to face challenges of a higher order, of which their predecessors were unaware. For example, in the year 2000 A..D. there would be more than six billion people in the world, double of the present total. This tremendous increase in population would have far-reaching consequences.

With impoverished lands whose food supply is already depleted, the expected increase in population raises the danger of worsening hunger. Major efforts are under way to cope with this problem. Agricultural scientists and technologists have come up with many proposals for increasing the world's food supply. The impact of labour-saving equipment on farming is already clear. In 1880 it took a farmer in the United States 46 hours to plant, cultivate and harvest one acre. In 1960 it took seven hours and by 1965 progressive farmers were doing this job in two hours. One way or the other, considerable amount of experimental work is directed at increasing the efficiency with which man can produce food on the 3.5 billion acres of earth's surface presently under cultivation. By 1920 coal was utilised to the extent of three-fourth of the total available resources for the development of energy. Today oil and petroleum products make up about 70 per cent or so of the raw fuel used to produce energy in the United States. By 2000 A.D., nuclear fuels will be having a dominating position. Today electricity provides just 20 per cent of the energy used by the consumer in the developed countries compared with ten percent in 1930. It has been estimated that this probably will be about 30 per cent by 1980 and about 40 to 50 per cent by the year 2000 A.D. Most of the big new power-stations will be built around nuclear reactors. Although supersonic transport has yet to fly, advance thinking has already turned towards hypersonic transport. Supersonic transport or S.S.T. would be quite common. Similarly launching of unmanned probes to study planets or long duration astronaut exploration would become quite frequent. These are some indications of advancement in engineering and technology which is expected to take place in the developed countries in the near future. Already the gap between the technology in the developed countries and the developing countries is getting narrower and narrower. The engineers of tomorrow will have to respond to these technological advances.

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TRUST MONEY HELPS UNIVERSITY TO OPEN NEW COURSES

A trust established in 1944 under the chairmanship of late Sardar Patel has helped the University of Gujarat to set up the faculty of business management. The Gujarat University Trust was formed to collect funds for the establishment of a residential university in Ahmedabad with the help of late G.V. Mavalankar, Sheth Amritlal Hargovindas and Sheth Kasturbhai Lalbhai. The trust collected forty lakhs rupees. A major part of this money was spent for acquiring 260 acres land for constructing the university buildings and hostels. The university authorities were successful in negotiating with the surviving trust members for using the balance of the money for starting a computer centre, space technology centre and a business management faculty. The University Grants Commission has provided funds for the computer centre and space technology and this enabled the university to allow Rs. 5 lakhs for the new faculty of business management. The university proposes to start a 2-year degree course in the business management from the next academic year. It is expected that the State Government will meet the annual recurring expenditure of rupees two lakhs. The new course has been designed keeping in view the requirements of the region.

The first batch would consist of thirty students selected from graduates of different faculties. A regular screening board has been appointed for this purpose. The courses would be organized on the semester system in this faculty. Besides, the appointment of a regular faculty, a team of visiting professors from the Indian Institute of Management and the Sardar Patel Institute of Economic and Social Research would be invited to participate in the working of this new department.

A post-graduate diploma course and a short-term course in management is also being planned for the benefit of those who want to have a much more specialised programme.

Dr. Devendra Lal, Director of P.R.L. Inaugurating the Computer Training Centre

COMPUTER TRAINING CENTRE AT GUJARAT UNIVERSITY

With the advancement of knowledge and ramification of subjects, teaching methods and techniques, the needs of teachers and students for a speedy device like a computer to help them in data-collecting, data-processing and analysing their teaching and research work was keenly felt for a long time. The multi-disciplinary research activities developed in the University only further increased the need for such a facility. The Physical Research Laboratory located in Ahmedabad recently acquired a new I.B.M. System — 1360 model, 44 Computer and this provided an apportunity for the university to negotiate with the P.R.L. for the acquisition of the I.B.M. 1620 Computer. After a prolonged discussions with the authorities of P.R.L. and the Electronic Commission of the Government of India, the university authorities could succeed in getting this equipment and establishing a computer centre, the need for which had existed for long. The centre was formerly inaugurated on March 14 by Dr. Devendra Lal, Director P.R.L. This centre will now offer training courses in computer programming and would make the facilities available to its faculty members and students and for examination work of the university. Gujarat University would be the first university in the State to offer such a facility.

ADVANCED COURSE IN PUBLIC SPEAKING

The Bombay University Debating Society for the first time organised an advanced course in public speaking. It was inaugurated by Prof. Namjoshi, Maharashtra Minister for Education. He emphasised the necessity of proper training and development for a forceful personality through public speaking. The subsequent sessions were devoted to extempore debates, group discussions, talks symposia and popular lectures. Prof. Jal Daruwalla in his talks on 'Group Discussion—how to participate in them' counselled the university students to keep suspense and humour in their discussions and speeches. But he cautioned them to be precise. The trade union leader, Mr. George Fernandes spoke on 'elements of political speech making'. The art of compereing was explained in a humorous way by Mr. Amin Saiani, who punched his speech with numerous jokes. He advised the participants to read, collect and catalogue jokes for appropriate use during compereing. Dr. R.K.

Anand, a leading paediatrician of Bombay gave valuable suggestions on 'chairing conventional and round-table conferences'. He suggested various 'dos' and 'donts' for the Chairman. Prof. A. N. Kothare, Dean of Students, Bombay University, spoke on the art of preparing a speech'. In his enlightening talk, Prof. Kothare called upon the youth to develop a flair and feeling for words which build the bridge of communication. He analysed the science of reading as a source of information essential for speech making and counselled the participants to link gravity, levity and brevity in speeches to create an impact on the audience. Miss Vimla Patil, Assistant Editor, Femina, conducted a mock press conference and initiated the students into different aspects of handling a press conference This was followed by an informative talk on 'Radio Speech' by Shri H.S. Dalal of All India Radio, Bombay.

UNIVERSITIES AND RESEARCH INSTITUTES

Mr. J.M. Shelat, Judge, Supreme Court of India, while addressing the convocation of the South Gujarat University observed that the universities were the laboratories of new thoughts and concepts and a centre for research. He deprived the tendency to set up separate autonomous institutions for research unconnected with the universities. The establishment of such institutions constituted an admission that universities in general were incapable of fulfilling their function as laboratories for new ideas and research. Such institutions deprive the universities of a large number of talented persons who would ordinarily have served them and brought credit to them by their work of research and utility. He pleaded that enough resources should be made available to the universities for strengthening and supplementing their research capabilities.

Mr. Shelat said that during the last two decades, there has been loud clamour for increasing the number of universities and colleges. As a matter of fact, the increase in the higher education centres in recent years had been phenomenal. The Education Ministry's draft proposal for the Fifth Five Year Plan envisage the setting up of fifteen more new universities. The demand for higher education is so considerable that some universities have become unmanagable with rapid rise in the number of students they have to absorb. Paradoxically, as the number of universities is increasing, there is also the phenomena of increasing unrest in campuses and closures of colleges and even universities. It is disturbing to find that the more the universities are set up the more there is the clamour against them. The reason is that new universities are set up simply to satisfy demands for entrance in a particular region without first fulfilling the preconditions requisite for a university to perform its proper functions. None of them is set up with a new conception of university education to suit the needs and demands of the community. Often a new university is set up as a concession to a parochial demand.

Mr. Shelat pointed out that it is difficult to say that students should not involve themselves into the political issues. Students have joined in the political fray ever since our independence strugle and it is too late now to retrace but also impossible to expect young men and women holding back from day-to-day issues agitating the community. The proper remedy is to prevent them from being made the pawns of others and to instruct them in the various implications of such issues, so that if they take up a particular attitude they do so with full understanding and appreciation. The basic trouble is the lack of faith amongst the students in the teacher's ability to teach and in the integrity of the system of examinations. The teachers are considered to be the true and proper examiners on the principle that they only can properly assess the competence of the examinees. Though that principle is understandable, its efficacy is being doubted since in some places the ability to teach is itself suspect. Nonetheless, such a premise does exists and it does no good to anyone concerned with universities and their administration to dismiss it airily. Therefore, there is no doubt that with the rapid expansion of higher education and the corresponding need of teachers, the temptation often is to recruit those who are not able to impart knowledge to the satisfaction of the taught. The feeling then runs high that there is no proper *cuid pro cuo.*

The demand for vocational training and that university education must mould itself to correspond to the needs of society is valid upto a certain point but the utility of such training is often exaggerated. What is forgotten is that the primary function of a university is to provide an atmosphere of freedom and of a corporate life and an instruction which enables a young man or a young woman to grow to his or her full stature and to understand in the process the dignity of human personality. For that purpose the university has to set up a community which thinks and evolves new concepts in place of the old which have failed and which acts as the conscience of the society.

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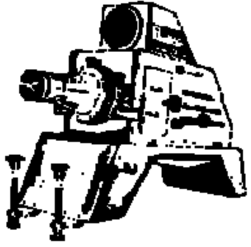
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BIOLOGICAL ASPECTS OF STUDENT UNREST

An international study on the biological aspects of student unrest has been undertaken by the International Union of School and University Health Medicine under the co-sponsorship of the World Health Organization and UNESCO. The aim of the study is to determine whether there is any correlation between the measurable elements in the type of life imposed on students and the unrest in university communities. If some such correlation exists, it would be possible to formulate principles to serve as a basis of reforming the concept of university life, the way in which it is organized, and the conditions in which university students live.

That such a study is needed is shown by the frequency, extent and spread of the crisis now disturbing the universities and which range from non-violent demonstrations to occupation of premises, rioting and vandalism. Such crises are occurring in many countries, whatever their political or socio-economic conditions, their educational system or their cultural characteristics. They are, therefore, symptoms of a deep and general unrest whose causes have been attributed to political, social or educational conditions. These factors have of course been studied in various countries but very little has been done, however, to determine whether part of this violence is not due to factors that might be called biological in the broad sense of the term, i.e., all those psychosomatic aspects of the life of the adolescents or young adults who make up the student body. Whether such biological factors play a significant role is the question which a multi-disciplinary group, composed of physicians from the university health services, psychologists, sociologists and administrators are examining. The idea is to compare the conditions of life of present-day students with those of other communities of a similar age group and with those of students of previous generations. The available data on biological changes over the last few decades shows that the average height of young people have been continuously increasing and that the onset of puberty—with its related psychosomatic changes— is now earlier. These physical developments have already had important economic and social effects. It is expected that the research which the study will stimulate in the health services of the universities should throw a new light on the mental health of undergraduates — now and in the past and on the serious problems of suicide and attempted suicide in university circles. The study is expected to result in many gains: first a better insight into the conditions of life of which little is known and an understanding of requirements hitherto vaguely expressed. A systematic comparison between universities should provide a picture of student communities from the biological point of view.

Among the hypothesis by the promoters of the study there is one which it is essential to verify : Are the manifestations of unrest and the various types of violent or escapist behaviour among students due to the fact that their earlier physiological maturity is at odds with their dependent status and their lack of integration with society, which is itself a result of the failure of university structures to adapt to changed circumstances? An analysis of the student's daily life in the light of physiological standards may answer this question. And a comparison of the data collected in various universities may provide a valuable basis for rethinking the education process and the organization of the campus.

The hypothesis of the study was formulated by Professor Robert Debr'e, who had examined in 1962 the conditions of life of French school children in great detail. After considerable deliberation and consultation, the Coordinating Committee of the project has decided that a small number of pilot studies be established to test the methods for the study and to verify certain hypothesis on which it is based. Four universities have been chosen for these pilot studies : Lyon (France) Nottingham (United Kingdom), Prague (Czechoslovakia) and Porto Alegre (Brazil).

An International Seminar on the University Student life will be held this year in December in Geneva soon after the completion of these pilot studies.

PERSONAL

1. Dr. M. S. Swaminathan, Director - General, I.C.AR. has been elected as the fellow of the Royal Society of London.
2. Dr. P.S. Lamba has been appointed as the Vice-Chancellor of the Udaipur University.
3. Mr. N. Gopalkrishna has taken over as the Vice-Chancellor of Punjabrao Krishi Vishwavidyalaya, Akola.
4. Mr. Zawar Husain has taken over as the Vice-Chancellor of the Bihar University.
5. Mr. Devendra Prasad Singh has taken over as the Vice-Chancellor of the Bhagalpur University.
6. Mr. J.B. Sandil has taken over as the Vice-Chancellor of Saurashtra University.
7. Mr. G.S. Marwaha has been appointed Director of the Indian School of Mines, Dhanbad.
8. Mr. K.R. Chaudhary has been appointed as the Registrar of the Kurukshetra University.
9. Mr. B.N. Jha has been appointed Registrar of the Mithila University.

SOCIAL RESPONSIBILITIES OF VARSITIES

Professor S. Nurul Hasan, addressed the convocation of Panjab University this year. He emphasised the social responsibilities of the universities at this juncture in our history when we have resolved to create a secular, democratic and socialist society and are developing a major programme to implement this decision. For the cultivation of these values, there will have to be a radical revolution in the content of higher education, in the extra-curricular activities and in the methods of teaching and evaluation. The university system should not merely contribute to the process of social changes through its work and ideas, but it must also identify itself with the common people. For this, it would be essential to provide equality of educational opportunity to the talented children from all social strata and especially from the under-privileged social groups. But unfortunately, this does not happen in our system which has strong elite base—it recruits its students almost exclusively from the upper castes or classes and its output also becomes an elite because it find jobs under Government which give it a political advantage, a social status and an economic security.

Prof. Hasan also emphasised the national and international responsibilities of universities in his address. He was of the opinion that universities owe to their students, whatever their field of specialisation, to give them a basic understanding into major problems facing the country and their tentative solution. He wanted the university students to be acquainted with the basic issues facing the country such as secularism, national integration, political development, economic growth, population control, food supply, educational reconstruction, improvement of health standards or defence. He wanted the universities to strive to frame a deep sense of patriotism and to counteract the separatist tendencies of linguism, regionalism or casteism. University student is also a citizen of the world. He has, therefore, to be made familiar with the world outside, and the forces which are welding us into one-world. This international understanding and outlook is not incompatible with a deep sense of patriotism for one's own country. So the programme which are to be developed in this aspect must harmonise nationalism with an international outlook and understanding. To promote this is yet another important social responsibility of the university system.

BREAKTHROUGH IN ASSAM LANGUAGE DEADLOCK

A new formula to resolve the language deadlock in Assam is being worked out. Under this formula, it is proposed to have Assamese as the medium of instruction in colleges in Brahamaputra valley and Bengali in Cachar district while English would be made the additional medium of instruction throughout the state. It is expected that Dibrugarh University is likely to agree to have English as the medium of instruction in addition to Assamese. The Gauhati University has however already adopted English as the additional medium of instruction for the coming ten years.

It is hoped that once the medium of instruction becomes English, both Assamese and Bengalis would have the option to study in English. The indispensability of study of English for technical subjects has been realised in all quarters.

COURSE IN TEA SCIENCE AND TECHNOLOGY

A two year postgraduate course in Tea Science and Technology has been introduced in the Assam Agricultural University. Selection to the first batch of six students was finalised by a special selection board appointed for this purpose. The university has designed this need based and industry oriented advance course after consulting experts in the fields of tea husbandry, tea enginering and tea economics and administration. The Tea Industry as well as the Tea Board and the Tocklai Tea Experimental Station have been closely associated with the organisation of the Department of Tea, Science and Technology. Their expert advice was utilised in different ways for designing effective academic programmes both at the undergraduate and postgraduate levels. The needs of the field management practitioners were given special consideration. The Directorate of Technical Education of the Government of Assam, M/s Steelworth Pvt. Ltd, and Indian Council for Agricultural Research have provided liberal assistance in the form of scholarships. In the four-year BSc (Agriculture) degree course, Tea, Science and Technology has been allowed as a special 'elective course' in the last two years. The Indian Tea Association, the Tea Association of India and the Bagaria Education Trust have also offered several scholarships for the undergraduate students and twenty seats have been earmarked annually for this specialised course. Out of this, seven seats have been reserved for candidates from Assam and the remaining seven seats are open for other states and candidates coming from abroad. Incidentally the first batch of the undergradate course included a student from Uganda which passed out last November.

KANPUR SEMINAR FOCUSSED ON HIGHER EDUCATION

A seminar on 'twenty five years of higher education in India—critique & perspectives' was organised under the auspices of the Kanpur University during the Convocation week. Shri Bhakt Darshan, the Vice-Chancellor of Kanpur University, inaugurated the seminar. The convenor of the seminar was Dr. (Mrs) Hemlata Swarup, Principal, Acharya Narendra Deva Mahapalika Mahila Mahavidyalaya, Kanpur. The seminar focussed attention on the ways to improve the standard of education, restructuring of syllabi, reform of teaching methods and examination system and democratisation of university governance. Prof. Satish Chandra, Vice-Chairman, University Grants Commission was the chief guest. Prof. B.M. Bhatia, Principal, Hindu College, Delhi, Dr. A.P. Mehrotra, Director, Higher University Education U.P., Shri Radha Krishan, former Vice-Chancellor of Kanpur University and academics from the different colleges of Kanpur University also participated in the deliberations of the seminar.

During the four sessions lasting for two days, different aspects of higher education were discussed in some detail but emphasis was laid on implementing the various suggestions as early as possible. The following topics came up for detailed discussion:—

1. Review of higher education in India during the last twenty five years.
2. Reforms in teaching and examination system.
3. Restructuring of syllabi.
4. Administration of higher education.

Papers were presented by teachers of different Colleges of Kanpur Universities and various practical suggestions were offered. Some of the more important ones are given below:—

(a) All questions should be compulsory and only the internal choice should be given.
(b) Some questions should be objective. Where small questions cannot be posed, there should be small essay type questions.
(c) The language of the questions should be clear and unambiguous.

2. Setting of papers should be done externally but the evaluation should be internal.
3. Coding system should be introduced immediately at post-graduates level and should be extended later on to undergraduate level.
4. Central evaluation should be introduced immediately at postgraduate level and should be extended to undergraduate level subsequently.
5. To avoid manipulations, the results should be declared at the earliest possible date.
6. Frequent examinations of the students will eliminate malpractices. There should not be one examination as at present. Somester system should be introduced.
7. The internal evaluation should be introduced. Ratio of internal and external evaluation should begin with 25-75 and should be increased subsequently to 50-50.
8. Answer books should be evaluated by more than one examiner.
9. Distribution of answer books among the examiners should almost be equal.
10. *Viva-voce* should be introduced.
11. Instead of marks, grades should be given.

NATIONAL SERVICE PROGRAMMES FOR UNIVERSITIES

Professor S. Nurul Hasan, Union Minister of Education, Social Welfare and Culture, Government of India, addressed the convocation of Vikram University this year. In his address he pleaded with the students to strive hard for achieving the national integration in the country. He said that the educated classes had a heavy responsibility of transforming the existing social order which is based on exploitation and gross inequality of opportunity and for improving the standards of living of the masses. The universities have an important part to play in this process of social transformation. Similarly the universities have a responsibility to build close links between the educated classes and the masses of the people. Universities have to make a three-fold effort. The first is to focus their research programmes on the problems facing the country and especially in their neighbourhood. The second is to develop programme of extension education through extra-mural activities of teachers and students. The third is to develop a programme of national service in which teachers and students should actively participate. These programmes could however be varied to suit the local requirements and capacities and interests of the students. Agricultural students, for instance, could develop programmes of extension services; medical students could provide medical services to rural areas and the science students could develop programmes of community science for the rural society.

Prof. Hasan wanted the programme of National Service to be of two types. The first may be a programme of one year of service to those who have already got their degree and who will work in appropriate fields before entering the world of work. The second may be a variety of programmes for university and college students at the undergraduate level. Some of these programmes like intensive services or local development works, could be developed during the long summer vacations. Others could be undertaken continuously through the year by working for one or two days in a week. Even programmes of individual responsibility could be designed. For instance, students may be required to make a certain number of persons literate before they get their degree.

Prof. Hasan also urged the universities to evolve a value system which should inspire its students and provide an active leadership in various areas. Different value systems could be considered and several tentative answers could be suggested. It depends, for instance, on the ability of teachers and students to keep their sense of curiosity alive and alert, to solve problems, and to develop habits of concentration and self-study. It required a commitment on their part to a relentless pursuit of truth, wheresoever it leads, without fear or favour. It demanded an objectivity of outlook, a scientific temper, an over-riding rationality, and a willingness to shift all evidence on its merits and to accept any conclusions, however, unpalatable, it may throw up. The teachers and students in the university should absorb these values as deeply as possible and should evaluate the performance continually on the basis of these criteria so that we could become worthy of this great system.

PROGRESSIVE FARMERS MEET AT PUSA INSTITUTE

A three-day Rabi Krishi Vigyan Mela was organized by Agricultural Research Institute in March this year to highlight the advances in research at the Institute in the past twenty five years. The crop investment technology section of the fair highlighted the Institute's contribution towards increasing food production especially that of wheat. Out of the 400 varieties of wheat under trial, 32 varieties were exhibited at the Kisan Mela. The cheaper and easier means of propagation of various fruits by grafting, stooling and epicotyl grafting were also exhibited for the benefit of visitors. The famous rose varieties evolved at the Institute—Homi Bhabha, Delhi Princess and Kankanji, which are being exported to European countries were also on display.

The achievements of the Institute in the fields of agro-techniques, soil sciences, seed testing, water utilization and farm machinery were also highlighted. Exhibits were on display which showed how the salinity and alkalinity problem of the soil can be tackled by simple agronomic practices like flushing of salts from the surface, leaching of salts, modifications in the methods of cultivation and sowing.

Institute had done commendable work in the field of dry farming. The newly evolved moisture conservation and crop-raising techniques for dry farming was explained to farmers in a popular way and the various varieties of bajara, jawar, arhar, castor and wheat evolved at the Institute for cultivation were displayed.

The new cropping methods evolved at the Institute for the benefit of small farmers were also shown. Now the farmers can effectively grow these crops on the same land if proper means suggested by the Institute are put into effect. The Crop Production Technology Section highlighted the various ways available to the farmers for controlling the common crop diseases.

The mobile van of the mela for testing soil and water was very popular with the visitors. In the afternoon joint meetings of scientific workers, farmers and extension workers were held and the practical problems of the farmers were discussed at length.

FIRST ASIAN AGRICULTURAL MUSEUM

A national agricultural museum, the first of its kind in Asia, would be set up in Delhi soon. The project would cost about one crore rupees in the first phase. The museum would serve the long need of providing a demonstration centre to popularise the modern agricultural practices.

The Ministry of Agriculture has already approached the Delhi Administration for the allotment of a proper site. The museum would display the latest high yielding varieties of various crops, new cropping patterns and will give demonstration about fisheries and fertilizer application and pest control methods.

A chain of similar museum will be set up in the States also.

NEW FARMING TECHNIQUES EVOLVED AT UDAIPUR

The University of Udaipur organised a Kisan Mela recently on its campus. About 5000 farmers and agricultural officials from different parts of the State participated in it. The various activities in the mela included demonstration of new crop varieties, new farm technologies, crop competitions, pesticides, fertilizers and implements, specialist advisory service and soil and water testing.

The university has been devising ways to improve the Rajasthan agriculture for some time. Recently it developed new farming techniques for cultivation of crops in arid areas. By a special use of fertilizers including phosphates and controlling weeds with the help of new chemicals like terbutrine, special methods of sowing and manuring have been evolved. The university has also been successful in developing a wilt-resistant variety of Tomato—'Udaipur 305' which is not only resistant to heat but suits the climatic conditions of the region.

Farming in famine areas has been made easy. The university specialists are proposing new farming techniques which will allow some new crops like sun-flower to grow quickly with the help of special fertilizer techniques. They have suggested to farmers to spray 1.3% urea solution on 'Karbi' to make it palatable and more nutritious for animals in famine areas.

COMPUTERS FOR PEST CONTROL

A novel method of pest control has been developed in the Department of Zoology in the University of Delhi. The technique is quite different from the usual concept of 'chemical pesticides' or "predator technique" in which an army of bigger insects are sent in the fields to kill the smaller pests. Prof. Kailash Nath Saxena has been working on these lines for sometime.

On the basis of the data made available from experiments in the laboratory, a computer-based model has been developed to simulate the entire sequence of different behavioural responses which vary from time to time in accordance with the different factors and result in the success or failure of the insects to select one or the other food / oviposition / shelter site. This simulation model follows the experimental observations.

The above model is then used for finding out what sensory signals can be placed, where and when, in order to interupt the process of selection of a suitable site by the insect and divert it towards sites where it may be trapped. Actually conducting these experiments in the field would involve enormous labour, time and money. Therefore obtaining the above information from the computer would save all these and suggest the most appropriate experiments which could be tested in the field for protection from the insects.

FORENSIC EXPERTS MEET FORENSIC EXPERTS AT POONA

A two-day seminar on "forensic scientist in the court of law" was held at Poona from March 5 to assess the *medico-legal* aspects of the science and its allied problems. Nineteen papers were presented by experts from the subjects of fingreprints, handwriting, spectroscopy and neutron activation analysis. Nawab Ali Yavar Jung, Governor of Maharashtra, inaugurated the Conference which was attended by forty delegates from all over the country.

He emphasised the necessity of providing an unbiased expert opinion, which should aim at the finality in evidence and detection through the utilisation of forensic science. The task of the expert should be moral and based on scientific approach to the problem and the views of the forensic experts should be unassailable by the contending party.

The conference was organized by the Indian Academy of Forensic Sciences. Shri B.N. Mullick, the President of the Academy, while welcoming the delegates referred to the multi-directional expanse of the science. In the modern days, toxicology, psychiatry, finger prints, psycho-legal sciences and *even the nuclear research* had vital part to play in the medico-legal work.

Mr. Mullick said that sometimes the views of the forensic experts did not receive due respect in the court of law but it was equally true that more research and improvement of techniques were required to be practised in forensic science in the country. He cited the example of rural areas where autopsies were being performed by inexperienced persons. "Overlapping" and its medico-legal interpretation in fingerprints, the scope for private experts in some branches of forensic medicine such as handwriting were some of the other issues which needed detailed examination.

SUB-STANDARD MEDICAL COLLEGES

The Ministry of Health is actively considering the ways to curb the growth of sub-standard medical colleges in the country. The Central Council of Health at its session held in Bhubaneswar *recently recommended that the* Central Government should enact the necessary legislation to curb the mushroom growth of private medical colleges. The Central Ministry of Health in pursuance of this resolution has advised the State Governments to pass resolutions enabling the Parliament to legislate on this subject. It is hoped that as soon as the enabling resolutions are received through state assemblies, appropriate bill would be brought forward in the Lok Sabha. At present, there are nine such sub-standard medical colleges in the country, six of them in Bihar and one each in Himachal Pradesh, Haryana and Uttar Pradesh.

The notorious system of collecting capitation fees in the garb of donations has been utilised by private bodies in indulging in this anti-social activity. Since education is a State subject, colleges for graduate medical education come under the jurisdiction of the State legislators and the Centre has no effective control. Recently the U.P. legislature has taken a positive step with a view against private medical colleges. However these piecemeal measures at the state level are no answer to the real problem till a comprehensive legislation is introduced.

SCIENTIFIC COOPERATION BETWEEN INDIA AND GDR

An official fact-finding mission from the Federal Republic of Germany visited leading scientific institutes and research laboratories in India recently. The mission was headed by Professor Dr. A. Boettcher of the Technical University of Aachen and included six scientists, representatives of the the Federal Ministry of External Affairs, the Federal Ministry of Research and Technology and the Federal Ministry of Economic Cooperation.

The purpose of the visit was to explore jointly the possibilities *of entering into a new phase of* Indo-German scientific and technological cooperation, increasing the exchange of information and promoting collaboration in the fields of scientific research and the development of new technologies in areas of mutual interest.

The delegation held discussions with representatives of the Government of India, especially with the Department of Science and Technology, the Ministry of Education and the Council of Scientific and Industrial Research.

Both sides stated that it would be desirable to strengthen Indo-German cooperation in science and technology by making suitable inter-governmental arrangements as a basis for future activities in this field. The task will now be to identify and formulate specific projects of interest to both sides. For this purpose, German Research Institutes, in conjunction with the Federal Ministry of Research, Technology & Communications, will submit detailed proposals to the Department of Science & Technology. *Three broad areas of cooperation* are envisaged: joint research on problems of mutual interest; assistance for the equipment of Indian research institutes; exchange of information and scientific personnel.

Successful projects along these lines are already in operation in the fields of Atomic Energy and Space Research, an agreement for which was signed in October 1971. A new project in the field of geophysical research is in preparation.

INSTITUTE OF EPIGRAPHY FOR MADRAS

The Tamil Nadu Government is proposing to establish an institute of epigraphy from the next academic year. The institute will be run by the State Department of Archaeology. It will select the students each year and provide them with intensive training in ancient scripts of the State and greater India, the mode of copying epigraphs and re-constructing history, art and culture of the country with the help of these inscriptions. The selected students will receive stipend of Rs. 125. They would be given instruction in Tamil, Sanskrit and other Dravidian languages. A diploma would be awarded to them at the end of their training.

Inaugurating the seminar organized by the State Department of Archaeology, Mr. T.P. Meenakshisundaram, former Vice-Chancellor of Madurai University, said that opportunity should be afforded to students to assist in the research for historical records. He pointed out that a good number of folk songs relating to hero stones were current among the population which should be tape-recorded and published as useful and valuable treasurers of folk literature.

An exhibition containing paper rubbings of hero stones, ranging from the time of the early Pallavas (sixth century AD) to the period of the Vijayanagar rulers (sixteenth century) throwing light on the art, history and culture of the common man of the time was also inaugurated. Excellent pieces of early Tamil art, figures of heroes shown in the animated movements, fighting their enemies with bows and other implements were also displayed.

ACADEMY OF SCIENCES MEETS AT ALLAHABAD

Forty second annual session of the National Academy of Sciences was held from March 4 to 6, 1973 at Allahabad. The conference was attended by the leading scientists of the country and was inaugurated by Mr. Akbar Ali Khan, Governor of Uttar Pradesh. Dr. B. R. Saxena, Vice-Chancellor of Allahabad University, welcoming the delegates said that in the developing countries like India, science had a special role to play in fighting poverty and backwardness. Science has to increase productivity, achieve self-sufficiency and also bring about a transformation in the thinking from orthodoxy and resistance to a dynamic and progressive outlook. Mr. Khan in his inaugural address, exhorted the scientists to accept the responsibility to implement what they have planned. The development plans should relate to all the branches of economy. The Government patronage of Science had however its own limitations. The claim that the Government might get scientists to contribute to the general welfare and progress of the nation must be honoured. This was an essential obligation of the scientific community. But this obligation and even financial dependence of Science on the Government should not distort the relationship between scientific community and the Government.

Dr. M. L. Dhar, Director, Central Drug Research Institute, Lucknow, in his general presidential address said that there had been a phenomenal progress not only in the enrolment in the universities and colleges but more so in the national expenditure on education during recent years. We have to make significant departure from the traditional educational pattern and make it purposeful to serve the needs of youth. In technical education, there should be emphasis particularly on work experience at the college and in the field. The model of medical teaching where patient care and treatment occupy the major part of a student's time, must be applied universally to all forms of engineering and technology so that our engineers may develop an ingrained respect for the proverbial 'dirty hand'. For the students of Science, particularly the postgraduates it must be mandatory that they spend a specific part of their learning time in the fields.

The Union Minister for Education, Prof. Nurul Hasan, was the chief guest of the Academy. In his address he called upon the scientists to create a 'scientific temper' in the country for its progress and development. He said that Science in a country could grow to the extent, it was deep routed in the culture of people, to the extent it influenced the thinking of the people and it made efforts to solve their problems. He informed that his ministry was considering a proposal to bring out a scientific journal in Hindi. It would be a digest of the latest techniques and achievements in the Science and Technology for the use of the masses.

A number of papers were presented before the Physical and Biological Science sections of the conference which were presided by Dr. R. P. Rastogi of the University of Gorakhpur and Prof. K.S. Thind of Panjab University, Chandigarh respectively.

NATURAL HISTORY MUSEUM FOR DELHI

The Department of Science and Technology has decided to set up a museum of natural history in Delhi.

The museum will display a composite theme showing the evolution of earth and life including the origin of man. The Indian fauna and flora would be specially emphasized.

There would be separate panel on the fossils of Indian origin. The exhibits will consists of models, stuffed animals, pictures and charts. Each natural history subject like Zoology, Botany, Anthropology and Geology will have a separate wing. The work on the museum is expected to be completed during the fifth plan.

MADRAS TEACHERS DISCUSS EXAMINATION REFORMS

A seminar was recently organized by the Association of University Teachers in Madras. The emphasis was laid on the practical aspects of examination reform. Among the various aspect of education reform, the examination system occupied the foremost place. Though the main problem has been identified and the broad outlines have been suggested but the effort required to bring out the required changes has not been forthcoming. Universities are convinced in principle about the excellence of various proposals to reform the examinations but are confronted with numerous practical difficulties when it comes to introducing measures such as internal assessment and the semester system. The present system of examination at the end of the course encourages only selective study which did not require continuous effort on the part of students. It tested only the memory and not the higher abilities of analysis and originality. It was at best an approximate assessment with low reliability. However, the external examination could not be abolished altogether either. They ensured uniformity in assessment under the present pattern of affiliating universities and were infact indispensable to the certification process. So any reform that could be suggested should be confined within the framework of this system and may be supplemented by the internal assessment.

The teachers also noted that internal assessment under the present system had several obvious drawbacks. It gave room to favouritism and victimisation and the students would rather trust an external examiner whom they did not know than their own teacher. Also, different colleges would try to push up their students and it would be difficult to ensure uniformity.

As a way out, the educators suggested that the grades awarded in the internal assessment conducted by the colleges should not be aggregated with the marks obtained in the university examinations. The results of the two should be shown separately on the final certificate. It was for the employer, and not for the university, to decide on the relative weightage to be given to the two parts. The tutorial system in which each teacher personally guided a small group of students in their day-to-day work was advocated to facilitate internal assessment. In the postgraduate classes, original dissertations and project work were also to be considered.

The need to re-structuring the question paper was stressed by all the speakers. The present essay type questions with a wide choice only encouraged selective study. The method could be to divide the question papers into various sections: one could contain the essay type question of the conventional type to examine the general comprehension of the subject, the other part could consist of short-objectives type questions of the American pattern to test the sense of precision and the third type could consist of problems solving questions to test the analytical ability. The idea of a question bank for the humanities was suggested by some teachers. With regard to the valuation, the seminar was of the view that a detailed discussions should take place between the chief examiner and his assistants on the scope of the questions. To minimise the post-examination operation of students, the universities were cautioned to tighten up their procedures and keep the identity of the examiners secret.

A student participant in the seminar suggested that the duration of the course should be made more flexible. The present duration of the course was a rigid one and some students could complete the course earlier than others while some required a longer time. He wanted that the students should be allowed to take the examinations at different periods as and when they were ready and not at the end of a fixed term.

The Association plans to hold another seminar to discuss the problems of teacher-student ratio, quality of the textbooks and training of examiners in the new system which have a close bearing on the examination reform.

JOB OPPORTUNITIES DURING VACATION

The University of Madras has initiated, as an experimental measure, a small pilot project for finding vacation employment for students in colleges. With the assistance of the University Employment and Guidance Bureau and the University Students Information Bureau, Various industries in the state have been approached to provide adequate part-time vacation employment for students. There has been a ready response from the industrial community and it is possible to provide job opportunities for as many as 325 students this summer.

The scheme of 'earning while learning' has been extended to Madras University Library in a modified form by providing part-time employment to deserving poor students. The students would be able to work now in the library during their leisure hours on Sundays and public holidays. This scheme would be extended to faculties subsequently. As many as 75 students would be helped to work for a few hours each day and earn. This would enable them to meet at least a part of their expenses towards their education. Besides these schemes, the university authorities have also approved the starting of a few job-oriented courses which would be available to students from the coming academic session:

(i) Bachelor of Science in Applied Sciences

(ii) B.A. (Cooperation)

(iii) B.A. in South Indian Philosophy, Religion and Culture.

(iv) Master's course in Management Sciences

(v) Diploma Course in Accountancy and Taxation Law

(vi) Bachelor of Journalism

(vii) Bachelor of Science in Medical Laboratory and Technology

(viii) Master of Pharmacy

Railway Youth Specials

The Railway Ministry is considering a proposal to issue liberal concessional tickets to students and youths for long journeys and also to run special trains for them. These special trains would take them round to places of historical importance and to industrial sectors to enable them to see the new India.

The Essence of the University is the Intellect

• Selected extracts from Dimbleby Lecture delivered by Lord Noel Annan are reproduced below. Some of his remarks have relevance to our universities as well.

One criticism of universities is that they do not gear what they teach to jobs. The argument runs: there should be more courses relevant to jobs in the City, commerce and government. Why, it is asked, if science and technology in the universities are so good, should we as a nation be so bad at exploiting our scientific inventiveness? Is it because we have too few people expert in marketing, in salesmanship, in finance and, above all, in management? The reason suggested is that universities despite these skills, look down on commerce and preach a naive contempt for money-making.

I am puzzled by parts of this argument because in financial skills the City of London seems to me supreme in Europe and a good number of our best students work there. If we are failing among the nations it is in our ability to manufacture saleable goods. But universities ought to take this criticism seriously because it has been made on and off ever since the 1890s.

I ask myself whether this criticism does not strike home in the older places, which attract so many of our ablest undergraduates. Vocational education there is pretty traditional and not much help to the business man. As more students enter universities not all want to learn the subjects that were famous in Oxbridge before the war. As Sir Eric Ashby, the Master of Clare, puts it: "More does not mean worse: but undoubtedly more means different."

There should be changes. Let me give one instance. The dons who teach classics or history never imagine that all their pupils are going to become researchers. But scientists and technologists do—or rather their courses contain nothing but the kind of work which equips you to research in science. I wonder whether it would not be better if a third of the time spent by a student reading science, medicine or engineering were spent learning how to relate it to the world of affairs.

If you want to discuss whether Truman was right to drop the atom bomb, you have to learn a good deal about politics, history and ethics. If a scientist wants to hold forth on pollution, he should have to study Solly Zuckerman's excellent speeches about science and pollution — excellent because they show just how important it is for a scientist to learn the governmental techniques of Whitehall and apply them to a subject which is really tough and whose problems cannot be solved by baring a bleeding heart.

Yet when politicians say that universities do not care whether what they teach relates to jobs, I rub my eyes and wonder if they have ever read the prospectuses of our universities. They have always taught these vocational subjects. Law, Medicine, Theology, were among the first subjects studied there. So today there are dozens of other courses which help students enter a profession, even some of the newest, such as town and countryside planning. If universities did not recognize social needs they would deserve to be pilloried.

They do recognize them. I could quote over a hundred examples of changes in the curriculum to meet social needs. Here are a measly three. Warwick runs a joint course in economics and industry. Leeds mixes French and Management studies, and has a new centre in textile engineering. Graduates from the School of European Studies at Sussex are already getting jobs in Brussels.

The so-called sandwich course is designed for vocational education. The 12 new technological universities brought it into the university system. A student spends so many months in the university and so many in industry and then returns, mixing theory with practice.

All these innovations produced a spin-off in many other universities. They too began to change and experiment. Leicester, Brunel, Aston, Lancaster, Newcastle do certain things far better than London or Cambridge for the simple reason that London and Cambridge do not do them at all.

The new places cater for a different kind of student and do so admirably.

That is why I fume when the mandarins in Whitehall fail to tell their masters how much universities have responded to the needs of society. Too many politicians are left believing that universities teach what was taught when they were students. So the ministry fudges the statistics, and in answer to parliamentary questions, makes it appear that it costs

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Lord Noel is provost of University College, London.

more per student to teach social studies at a university than at the polys, whereas the opposite is the case. The political in-fighting in Whitehall is a good deal keener than the open combat in Westminister. The memo is more deadly than the demo.

There is a difference between education for a vocation and technical training for a vocation. A university can do the first but it cannot teach everything to a student: a medical student has to work in a hospital, a law student in chambers or a solicitor's office, before he can qualify as a doctor or a lawyer. Our Civil Service has at last followed France's example and set up its own college — thought on different lines. And note the French did not expect the skills a civil servant needs to be developed in a university. They set up the famous L'Ecole Nationale d'Administration which is a post-university institution.

Industrialists tell me that students are not educated in the skills that bring them to the board room. I tell industrialists that they cannot expect us to teach them those skills and that in any case they keep bright young men too long on routine jobs. One industrialist said: "We've got one of your graduates and he couldn't even write a report in decent English". He has a point, we do not do nearly enough to teach our students to communicate clearly. But I am bound to say that neither could I when I took my degree.

Whatever criticism of universities can be made on this score the truth is that if Britain is less efficient and productive than she should be, the causes lie deep in the history, attitudes, ideals, preoccupations and social structure of the past 80 years. Higher education is only a minor cause. But one of the ways universities can help is through postgraduate and post-experience courses.

We are saying to government "Don't cut the numbers doing one-year postgraduate courses because those courses are strictly vocational and, we think, immensely valuable to industry."

We are saying "Don't fall for the argument that universities ought to have a four-term year so that more 18-year-olds could be processed through".

Dons use the so-called vacations as the time not only when they research, conduct exams, and teach graduate students, but when they put on courses for teachers, industrialists, and professional men from social workers to policemen. This need to retread the tyres of the mind, what the French call education permanente, is as yet in its infancy.

Dons have made it clear through their Association of University Teachers that they expect to get the finance to continue the expansion. But they recognize that it would be wrong to expand as fast as we did in the last decade and pre-empt funds needed for places which specialize in vocational training.

Sub-degree courses are just as important as degree work. But such expansion will end in total confusion if the curriculum in polytechnics becomes indistinguishable from that of a university, or colleges of further education try to do what polytechnics should be doing.

Universities have no right to expect their buildings to cost more per square foot than polytechnic buildings. Universities have no right to better welfare facilities for their staff and students. But it is a sheer waste for the polys to offer courses in physics and social sciences which are virtually the same as those offered in universities.

Scholarship is not wisdom and universities cannot save souls. But scholarship is a way of acquiring wisdom, and universities are one of the last refuges for the contemplative life. For centuries there have been institutions (in the middle ages they were called the monasteries) which provided a refuge for those who practice contemplation.

Do not confuse contemplation with idleness. Contemplation for even a few hours a day is the hardest kind of work known to me. It demands intense self-discipline and concentration—people such as myself slide off into the easier task of working longer hours. Without contemplation we will not get the really penetrating criticism of men in power, men of the world, slick journalist, trend-setters, and of authorities such as myself. That is what universities exist to provide. As far as I am concerned, they certainly provide it.

The wisdom which a university can give is essentially its way of life, its tone of voice. The university can only deal in one currency, reason. It does not exclude passion, but the passion, the conviction, is born of the dispassionate study which has led you to your conclusion.

Some years ago, trying to say what I thought was the essence of the university, I said it was the intellect. That is what universities exist for. Everything else is secondary. Universities should hold up for admiration the intellectual life. The most precious gift they have to offer is to live and work among books or in laboratories.

A university is dead if it cannot communicate to students the struggle--and the disappointments as well as the triumphs — to produce out of the chaos of human experience a few grains of order won by the intellect. Intellectual power is not the only quality we need in life. We need imagination, shrewdness, judgment, flair, sagacity, the trustworthiness that inspires confidence, the negotiating skill which brings about a compromise when both sides seem irreconcilable, we need toughness in taking decisions, courage to choose the lesser of two evils when the easy way out is to choose neither and allow an even worse to occur —these are qualities which people need in politics and business.

Universities cannot impart these qualities. All they can do is to keep on experimenting and innovating, they are the one great institution within society which stretches the intellect and provokes people to ask: how with these new discoveries in knowledge can we lead a better life?

National Seminar on Sports

Reported by G. S. Sivia

It goes to the credit of the university of Rajasthan in taking a well-timed decision to organise this Seminar immediately after the Munich Olympics. In fact, the decision was in line with the current wave of national thinking concerning the situation in the field of sports in the country. The Seminar, which was held on 9th, 10th and 11th March, 1973, had a fairly wide coverage from the All India Council of Sports, Planning Commission, Inter-University Sports Board, State Sports Councils, Directorates of Education, Colleges of Physical Education and the Netaji Subash Chander National Institute of Sports and various universities. The National Sports Federation were however conspicuous by their absence.

The first day was devoted to general discussions, subsequently three groups (syndicate) were formed to discuss various topics. The major points of discussions centered round the following subjects:

Setting up of a National Board of Physical Education and Sports

It was pointed out that the most important problem was the lack of co-ordination at all levels. The Seminar noticed that many agencies were operating in the field of sports like the National Sports Federation, All India Council of Sports including the State Sports Councils, Netaji Subash Chander National Institute of Sports, College of Physical Education, Inter-University Sports Board, University Grants Commission etc., without acting in co-ordination with each other. So the need for setting up an apex organization with functions of planning, co-ordination and execution assumed considerable importance. It was suggested that an autonomous board on the pattern of University Grants Commission may be established.

Facilities

The Seminar viewed with concern the inadequate physical facilities of playing fields in cosmopolitan cities. The situation worsened further when these grounds were used for other purposes. The parks and grounds in these cities were also facing a severe danger of being taken over for constructing offices and other buildings. At the same time, the existing meagre facilities were not being put to the best use. The Seminar therefore suggested that there should be a national policy and appropriate legislation in respect of the playing fields. Taking into consideration the prevailing economic situation in the country, construction of multi-purpose sports complexes was suggested. In view of the paucity of sports equipment of requisite quality, it was strongly felt that the Government should encourage the setting up of sports industries and should regulate the quality and price of the sports goods.

Personnel

The question of inadequacy of qualified personnel, status of physical education teachers, appointment of non-technical personnel for supervising sports activities at the university and college levels and the teacher student ratio came up for discussion. It was suggested that steps be taken to tackle these problems urgently.

Programmes

The analysis of the sports activities in the universities, colleges and schools revealed that there was no coordinated and comprehensive programme at the national level which could fit in terms of age categories, psychological needs, sex basis, local climate and the availability of facilities. The importance of broad-based programme of physical education for the student population was, therefore, underlined. In view of the prevailing situation a progressive programme of physical education and sports based on physiological and psycholoical needs was suggested for adoption, To implement the programme, it was necessary to provide physical education as an elective subject in schools and colleges.

Incentives for talented sportsmen

With the growing importance of competitive and commercial sports, the modern sport was becoming more and more of a specialised subject rather than being a source of recreation. There was no hope of achieving any international stature by a sportsman unless he devoted time and energy on a full-time basis. The Seminar therefore urged the authorities to properly look after talented sportsmen and provide them with enough incentives in the form of scholarships, preferential admissions to professional institutions. A provisions for a benevolent fund for the benefit of sports men was also recommended and the authorities were urged to increase the employment opportunities for the sportsmen.

Finances

The Seminar recommended that a National Sports Fund be created immediately and money may be collected through various sources such as (i) donations from industrial concerns (with provision for exemption from income-tax) (ii) sports lotteries and—charity shows (iii) suitable allotments out of entertainment tax (iv) special sports fee from the students and (v) adequate grants from Central and State Governments.

If the recommendations of the seminar are accepted it will augur well for the development of sports activities in the country.

Resource Problems of Agricultural Universities

M. R. Pal

Introductory

The population of India has witnessed a rapid rate of growth in spite of the intensive measures for Family Planning undertaken by the Government for the past few years. This is likely to result in a serious food problem unless simultaneous increases in the field of production are achieved. The Agricultural Universities have to play a vital role in this context by providing the much needed guidance and education to the farmers in increasing agricultural production by newer and better varieties and methods being found through research and making this new knowledge and technology available through trained personnel.

The Agricultural Universities differ from the pattern and aims of the traditional Universities as the former are service-oriented, the main concept behind establishing them being to integrate Agricultural Education, Research and Extension. This concept and its successful implementation naturally depend largely on the financial resources made available both at State and Central level.

Resources

The resources of any Agricultural University for successful maintenance and development of its institutionsandactivitiesmainlyconsistofthefollowing:

- (i) Direct income derived by the University which may broadly cover the following items:
  - (a) Tuition fees and other fees collected from students.
  - (b) Sale proceeds of farm produce and other miscellaneous receipts.
- (ii) Grants-in-aid from the State Government (Plan and Non-Plan)
- (iii) Grants-in-aid from the I.C.A.R.
- (iv) Grants-in-aid from Government of India and other agencies for special schemes for specified periods only.

The direct income derived towards students fees etc., are almost of a fixed nature in view of the intake capacity being fixed. Further, this is an inelastic source as, in the very nature of things, it is not possible to increase the fees due to various factors and the likely consequences any such attempt is likely to create. The sale proceeds of farm produce also cannot be expected to vary much from year to year as the farms are primarily meant for experimental purposes. Commercial cultivation undertaken at the farms is only marginal and does not contribute to the resources in any substantial manner.

All the Agricultural Universities in India owe their establishment to the State and are entirely supported by the State funds, especially in so far as maintenance of these institutions is concerned. The State Government provide financial assistance both under Non-Plan and Plan. I may mention here that the Andhra Pradesh Agricultural University was established in July, 1964 with the transfer in the first instance of the Agricultural, Veterinary and Home Science Colleges in the State. A grant of Rs. 10.00 lakhs was given for setting up the Administrative Office of the University, while the unspent budget provisions made for the Colleges etc. in the State Budget on the date of transfer were transferred to the University for that year and repeated year after year. Later the Research Institutions were transferred to the University in July, 1966 and May, 1967 with the budget provisions of the institutions for these years which are repeated in subsequent years. The Government have not provided any additional grants so far over the funds provided originally inspite of the repeated represntations of the University, resulting in an acute imbalance between the Non-Plan grants and expenditure of the University. The position with regard to other Agricultural Universities is not dissimilar, the differences, if any, being only one of degree. It is, therefore, very essential that well regulated flow of finance is assured by the State for the University so as to enable them to undertake careful planning of expenditure with reference to the available resources.

The following measures on the part of the State Government may go a long way in the successful financing of this higher professional education, research etc. entrusted to Agricultural Universities.

Non-Plan Assistance

(1) The State Government should fix the block grant for the University making a practical and realistic assessment of its requirements of funds for the efficient management of its institutions, say, for a period of five years, with complete freedom to the University to regulate the expenditure within the grant, without any conditions. Unless such financial freedom is forthcoming, academic freedom will become restricted, blocking the way of successful fulfilment of its objectives.

(2) A trend increase of 5% to 7% be allowed on the previous year's grant for normal increase in expenditure. This trend increase is very essential towards the expenditure on account of grant of normal grade increments to staff, increase in the rates of wages of labour, and increase in prices of inputs etc.

(3) Matching grants or grants to take over the entire liability in respect of I.C.A.R. Education schemes during or after specified periods in respect of schemes partly or wholly financed by the I.C.A.R. should be automatically assured on behalf of the State Government.

(4) Increase in expenditure in respect of increases in Pay, Dearness Allowance and other Allowances should be automatically added to the block grant, as

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and when these increases become effective on par with Government employees of the State. The need for this increase is really more pronounced in those States like Andhra Pradesh where the bulk of the employees are transferred from Government with the institutions and it is but fair and reasonable to provide these concessions to them at least on par with Government employees. It may be added that grant of pay scales and rates of Dearness Allowance on par with those of Government employees is the main factor for throwing the Maintenance Budget of the University out of gear.

(5) Many Colleges, laboratory and library etc., buildings are constructed with the financial assistance made available mostly by the I.C.A.R. which does not provide any grant for their annual maintenance after completion of such buildings. Their maintenance entails considerably high expenditure which may have to be provided as a separate grant by the State Government.

(6) Universities are set-up by the State and they should naturally be provided with Foundation grants and, in fact, some of the Universities in the Country are backed up with such grants, so as to enable them to lay a hand on it, even temporarily, in times of financial crisis. The foundation grant will serve as a cushion till funds are released by the State or I.C.A.R. on approved schemes as generally there is a time lag in such releases due to procedural bottle-necks. It will also be useful as a stand by in case of urgent proposals which have to be implemented by the University pending the approval of the State or I.C.A.R. as the case may be.

Plan Assistance

The pattern of assistance made available in this behalf by the State Governments differs at present from State to State. As already stated earlier, a certain degree of financial freedom is imperative for the successful implementation of the objectives set forth by the Universities. While the State Government may broadly fix the ceilings of Plan outlay and generally approve the development programme of the University, the details of the schemes and the investment on each such scheme, depending upon the varying circumstances, should be entirely left to the Universities.

As regards the quantum of financial assistance under Plan, it must be said that the present outlays are not encouraging but rather inadequate for providing adequate facilities at Research Stations to undertake research work on a satisfactory and rational basis. The Agricultural Universities should therefore, be provided Plan out-lay for any Plan period to the extent of at least 25% of the total outlay for "Agricultural Production" and "Animal Husbandry Schemes" etc. in the State Budget so as to enable the Universities to provide the much needed physical facilities at the Research Stations etc. and make research work effective and purposeful.

Indian Council of Agricultural Research

The Indian Council of Agricultural Research is the second major organisation which has undertaken the responsibility of providing sizeable financial assistance to the Agricultural Universities. This assistance is of two kinds, *viz.* (i) Central assistance to Agricultural Universities relating to Agricultural Education schemes and *(ii)* Coordinated Projects under Agriculture for the several major crops and under Animal Husbandry.

As regards the assistance for Agricultural Education Schemes, the ICAR has earmarked an assistance to the extent of Rs. 2,00 Crores for each University for Fifth Plan period. The flat rate of assistance for each State without reference to the size of the State and the needs for development would be anamolous for the reason that a bigger State and a smaller one are eligible for the same assistance. There is, therefore, urgent and imperative need to see that this pattern of assistance is reoriented on a more rational basis, keeping in view the size, needs, backwardness, capacity to utilise the grant purposefully etc. of the several Varsities. While on this subject, I would like to draw pointed attention to the fact that under the UGC pattern of assistance, the entire expenditure (both Recurring and Non-Recurring) is met by the I.C.A.R. on 100% basis so far as Post-Graduate education is concerned for the agreed period. In the case of approved Post-Graduate Courses under Andhra Pradesh Agricultural University, the I.C.A.R. has so far agreed to meet the expenditure on (i) Construction of buildings and *(ii)* Pay and Allowances of Professors only. The cost of running Post-Graduate courses especially in Agriculture and Veterinary faculties is very high, the incidence of expenditure on student practicals being large. Unless the entire recurring and Non-recurring expenditure is borne by the I.C.A.R. on the pattern of U.G.C. assistance in respect of Post-Graduate Courses, it would be difficult to do full justice to the courses. This aspect, therefore, merits special consideration of I.C.A.R. Experience has shown that the present system of clearance of financial assistance under Agricultural Education Schemes by the I.C.A.R. every year in the light of the recommendations of a Visiting Team nominated by the I.C.A.R. has been resulting in enormous delay in clearance of items of expenditure by the I.C.A.R. and consequently retarding the progress of development. It would seem necessary to have a rethinking in this behalf. It would be sufficient if the Visiting Team is sent only once for the entire Plan period instead of every year and I.C.A.R. approves the development plan of the University for Plan period on the basis of the recommendations of the study team laying down the norms and sizes of buildings and other items of expenditure which course of action may accelerate the pace of development envisaged under the approved plan.

So far as assistance for coordinated projects is concerned, the Universities have to implement the programme envisaged under each scheme. While there seems to be no difficulty for a University to implement such schemes, it is likely to be faced with a serious problem of surplus staff after the termination of the schemes sanctioned for specific periods of two to five years, as it is difficult for any University to absorb them in their normal set up. This may lead to a serious problem of many persons being thrown out of employment especially when the problem of 'Un-employment' has reached almost menacing proportions. It would, therefore, be imperative to keep this in view in formulating schemes for further development so as to avoid the above problem and consequent frustration among the teaching community.

Extension

Extension is really the most important aspect which merits very generous considration by the I.C.A.R. as the concept and objectives of the University can be best fulfilled only when effective and proper extension service is pressed into action so as to carry the knowledge of research from the institutions to the doors of the farmers and, in turn, to refer back the problems of the farmers to the research workers for solution.

This service does not seem to be uniform in all the States. As far as Andhra Pradesh is concerned, the Director of Agriculture has a separate Extension Wing covering the entire State in respect of 'Supplies and Services' etc.

The Andhra Pradesh Agricultural University has confined its activity in this behalf to educate the farmers on research results etc. and this part of work alone i.e. Extension Education only should, appropriately, form the basis of extension work of the University, leaving the supplies and services etc. to the State Department of Agriculture. With the limited financial assistance forthcoming from the State Government under Plan, the coverage of one district in full and two more districts in part by the Andhra Pradesh Agricultural University can be considered only a beginning in the right direction. Significant work can, however, be done in this behalf, if the whole State is covered by such a service. Such a coverage does not seem possible, even in the remote future, with the limited financial assistance forthcoming from the State Government. It is, therefore, suggested that the I.C.A.R. should provide financial assistance for Extension Education Service also.

It would be worthwhile to see how far it is possible to call upon the enterprising and well-to-do farmers to help augmentation of the University resources by way of donations etc. Agro-Industries could also play a not unimportant role in this direction considering the fact that they will be the major beneficiaries in many cases. Another suggestion for consideration is whether the farmers (at-least such of them who can afford) should be called upon to pay for such services rendered by the University as by Ambulatory Clinics etc. The time has come when persons who derive any benefit should be called upon to pay for the same.

The above suggestions may help administration of the Agricultural Universities in a smooth and purposeful manner resulting in increased agricultural production and ultimately making the country self-sufficient in foodgrains etc.

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Political Democratization of Delhi University

Dr. Gurugunta in her analysis of the present problems of Delhi university pleads passionately for creation of democratic ethos

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The popular conception that Delhi University should be a conservative, stable community characterized by consensus politics is no longer adequate to deal with present problems. The recent events such as demonstrations, marches, strikes, burning of buses and protests perhaps suggest that the university system, university community and authority is breaking down. In view of these conditions, it is useful to see the events in their larger perspective.

Political Action :

The assault on Delhi University by the teachers, students and workers is aimed directly at the exercise and distribution of power. Demonstrations, protests, strikes, bargaining and negotiations by protestors with the university authorities are all only a means to an end. These methods are not used by protestors to displace the authority system but to make the authorities responsive to their demands. The attempt is to create a democratic ethos whereby both democratic form and substance is established. This process does not imply a necessary breakdown of the university community or authority.

The Recent Past :

A few years ago the workers accepted whatever was negotiated by their leaders. The students abided by the decisions of the faculties and university administrators. The hierarchical lines of administrative authority beginning from Superintendent, Registrar, Principals, Pro-Vice-Chancellor and Vice-Chancellor was accepted as the normal working principle of the university.

Today this hierarchical line of administrative authority, their decisions, and practices are being questioned. The authority system of the university as an educational establishment is being affected by such attacks. The smooth running of administrative practices with its attendent privileges, patronage and concentration of power is being reviewed. Is it conducive to the well-being of the university community? In this process of questioning the accepted obligations of the hierarchy, obedience to superior officers by subordinates, accepting the judgements of those above them are seriously hampered. Even those who have acted wisely, judiciously in making decisions are shocked to find themselves faced with enquiries regarding their actions.

Who are these questioners?

Every administrative routine is today intercepted by the newly formed joint representative councils and committees representing the voice and opinion of teachers, students & workers of the university community. The result is inordinate delay in administrative action. These councils and committees, at various levels, are acting as enquiry committees making judgements of administrative acts. The policies and decisions of authorities are being re-evaluated by the university community. In this first stage of participation in decision-making, it is necessary to muster correct facts as a tool for enquiry and with these facts be better able to question the decisions made or acted upon by the authorities. Administrators, with their biases and their hitherto unchallenged patronage and privileges may have sometimes committed errors and judged erroneously. Today when they are questioned by the councils and committees, they find these bodies "fault finding" rather than "fact finding". The accuracy of such perception depends upon the nature and functioning of the representatives on these bodies. Nevertheless, to ignore the transformation that is taking place in the attitudes and behaviour of such representative bodies is to misjudge the political reality gravely.

The Functioning of Representative Committees

The transformation in the attitudes of the university community, their efforts to become vocal, committed and articulate, is a sign of increased political competency. The establishment of new lines of communication patterns for the whole community through representative joint councils and committees is an effort to reach the members of the whole university community. These messages bring profound changes, increasing political awareness in all. At present, however, it appears that these committees and councils are filled with hostile factions replacing stable groups of friendship patterns. Decision-making

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Dr. (Miss) Lella Gurugunta is a lecturer in Lady Shri Ram College in Delhi University.

processes are vitiated by discussions and arguments that are far from calm and orderly. Loud voices and agitations have replaced quiet argumentation and persuasion, accommodation and acquiescence. The success levels attained by protestors in successfully questioning the decisions of hierarchical authorities has simultaneously increased their level of challenge in the sphere of political competency in the university public. To view such a development as a breakdown in university community and authority is to take a pessimistic view of the recent happenings.

Symbolic Rewards and Symbolic Act

Through continuous political participation, the university community will have increased their political competence. Politics of confrontation against the whole authority system of the university by extreme radicals may tend to verge in actions of violence, replacing politics of accommodation and compromise, bargaining and negotiations. Acts of violence as an extreme means to an end is symbolic expression on the part of protestors not only to attract attention and support for themselves but to forge a demand aggressively. Such techniques while most expressive and dramatic at a given time, however, cannot muster support in a democratic ethos. On the other hand, it will tend to lend support to the pessimistic view that dictatorship is better than anarchy. The articulate, vocal, committed leaders of the university community may just be reversing such disruptive forces within the system from becoming destructive. Political democratization of Delhi University is just the beginning of reconstructing the university on a solid foundation. The foundation rests upon increasing the political competence of its members by increasing their participation in decision-making processes, thus providing an opportunity of leadership from within the system rather than gaining it from outside.

Political parties from outside the university system provide symbolic rewards for the members of the university community by their open support. Political parties as they give recognition and respond to the legitimacy of the various demands by the protestors from within the university system, the protestors find symbolic rewards from political parties for their actions. This is not to say all demands are supported by political parties or that they will effectively act on behalf of the protestors to show symbolic action. The university community cannot expect such symbolic rewards or actions from outside the university system all the time. They seek however such rewards from within the system. It becomes imperative, therefore, to accept and acknowledge the presence of protestors in the system. Acceptance or acknowledgement of their presence does not imply that there is agreement with the views of the protestors on various issues, nor does it mean that they are undermining the ability of those in authority to pursue policies and decisions with which they do not agree. The informed minority who are articulate, committed to non-violent participation are an asset to any institution.

The authorities as they respond to messages communicated in their direction by the protestors to that extent the symbolic reward is gained. In so doing the authorities are not distorting political reality but recognizing the need for effective participation of the university community in the functioning of the organization. This again would mean an increase in the political competency of those in authority. But by manipulation or deception the symbolic rewards cannot be misused either by those in authority or by the political parties.

Democratization Process

Commitment to democratic process implies that the democratic form as an important as the substance or content. The political democratization of Delhi University is a process of creating a democratic ethos. In such an ethos, the authorities, the administrators must begin to accept that there will be conflicting demands upon them and that they necessarily must reach compromises. Mere participation of protestors in committees making the authorities answerable to them on any and all questions is only a means to gain political competency. The test is one of leadership and increased political competency of those involved in this process of democratization of Delhi University.

As at present, the attempt is at gaining symbolic rewards but soon with experience the democratization process will be in the sphere of substance and content of decisions. In this stage of development, the mere receiving of messages from protestors will not be enough, giving the feeling of participation, while in effect the policies remain the same. The demand for symbolic acts by those in authority and by those protestors who promise changes will both be questioned as the whole university community gains political acumen, skills of leadership and capability to provide alternative policies.

The democratization process of Delhi University is seen more objectively and optimistically as a policy of articulate well informed leaders to reconstruct the university on a people structure. Through a maturing process of *continuous participation*, the political competency needed to provide leadership from within the university will be achieved. As and when this takes place not only will there be constructive plans for the well-being of the university community but plans to forge ties with other levels of decision-making for the well-being of the country.

This process may take long and yet may not take so long if we view the process of democratization as a means rather than an end. No system is stronger than its supporters, so also, no government is stronger than its supporters. Democratic ethos in a university is particularly important as it permeates society and national life at various levels. Political democratization of Delhi University is neither a break-down of authority nor of the community but a movement towards creating the democratic ethos.

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TOTAL	75,000

Each state will have a coordinator who will be the representative of a voluntary organization at the national level.

The programme at the State level will be entrusted to a small *sub-committee comprising the* State coordinator, the Development Commissioner, the Education Secretary and the NSS coordinators of the universities in the State. A Central Coordinating Committee comprising representatives of the Central Government, National Voluntary Organisations and the University *Grants Commission will* be in over-all charge and direction of this programme. The work camps will be administered by the NSS coordinators and teachers of university colleges and each camps will be assisted by a camp *organiser*.

The works to be taken by the youth will be largely those of manual labour, like (*a*) constructing of earthen dams for water conservation; (*b*) digging water tanks; (*c*) constructing very small earthen dams for soil conservation; (*d*) helping in afforestation. Thus the campaign will be largely production oriented education. But activities such as running of relief kitchens in famine stricken areas, organising and distribution of relief materials, organising educational and recreational programmes for the rural masses will also be taken up. It is not necessary that 'Youth against Famine' campaign is conducted only in the scarcity areas. The country as a whole has to fight against the famine and the youth in the surplus areas can contribute in this campaign by joining the productive activities of the campaign.

The participants in the programme will be largely from the universities and colleges, the 25% of them will comprise non-student youth of the locality, by and large of the same age as the students. Both sections of the participants will work together and have a valuable opportunity to intermingle with each other while working for a common cause. Efforts will also be made to involve local adult population in the work projects as well as the management of camps. These camps will be administered by the NSS coordinators of participating universities and colleges.

Of late it has been suggested in different quarters that there is a need for restructing of education at all levels in order to make it more relevant to the present needs and situation of the country. One of the suggestions that has emerged from the various discussions is that a time-term of national service at the university level should be made a pre-condition for the award of a degree. This suggestion arose from the realisation that an average college student stands alienated from the mainstream of Indian society and higher education tends to make him elite among the community. This pilot project has been initiated to test the validity of these assumptions. Provision has also been made for evaluating the working of 500 projects and for this purpose a sum of Rs. 15 lakhs has been provided accordingly.

Classified Advertisements

UNIVERSITY OF DELHI
DELHI-110007

Applications, in prescribed forms, are invited for the following posts.

1. *Botany : One Professor* (Temporary for the period ending 15-10-73).

2. Philosophy : (*i*) One Professor; (*ii*) One Lecturer.

3. Linguistics : One Reader.

4. Arabic and Persian: One Lecturer in Arabic.

5. Modern European Languages : (*i*) One Lecturer in Spanish; (*ii*) One Lecturer in Russian.

6. Economics: One Research Associate (Area Studies Unit, Pakistan).

7. Mathematics : *One Lecturer.*

8. Sociology: The post of Reader is for the period ending 28-2-74 under North Eastern Hill Area Programme but it is likely to continue.

9. Physics and Astrophysics (Centre of Advanced Study) : (*i*) Three Senior Research Fellows; (*ii*) Six Junior Research Fellows.

The scales of pay of the posts are —

(*a*) Professor : Rs. 1100-50-1300-60-1600

(*b*) Reader : Rs. 700-50-1250.

(*c*) Lecturer and Research Associate : Rs. 400-40-800-50-950.

(*d*) Senior Research Fellow : Rs. 500/- p.m. fixed without allowances.

(*e*) Junior Research Fellow : Rs 300/- p.m. fixed without allowances.

NOTE : A sum of Rs. 1000/- per annum is available to a Research Fellow for contingent expenditure.

All posts carry Dearness, City Compensatory, House Rent Allowances and Retirement benefits as admissible under the rules in force from time to time. Research Associateship being a floating post, does not carry Retirement benefits.

I. Qualifications :

(*a*) For Professorships

A scholar of eminence

Independent published work of high standard and experience of teaching Post-Graduate classes and guiding research for a considerable period desirable.

(*b*) For Readerships

Good academic record with a first or high second class Master's Degree in the subject concerned with a Doctor's Degree or equivalent published work.

Independent published work (in addition to the published work mentioned above) with at least 5 years teaching experience in Hons./Post-Graduate classes essential:

(*c*) For Lecturerships

Good academic record with a first or high second class Master's Degree or an equivalent degree of a Foreign University in the subject concerned.

(*d*) For Research Associateship

Good academic record with a first or high second class Master's Degree or an equivalent degree or a Foreign University in the subject concerned.

NOTE : Lecturers in Economics in a university or college are eligible to apply for the Research Associateship. Protection of pay is possible in the case of persons who are already working as Lecturers in Colleges, selected as Research Associate. The tenure of Research Associates is normally for a period of two years with a possible extension by one year more.

(*e*) For Senior Research Fellowships in the Centre of Advanced Study in Physics

The candidates should have good academic record with a first or high second class Master's Degree in Physics followed by a Doctoral Degree or equivalent published work in recognised journals and should have aptitude for original and independent research.

(*f*) For Junior Research Fellowships in the Centre of Advanced Study in Physics

The candidates should have good academic record with a first class Master's Degree in Physics with aptitude for Research.

NOTE : The Fellows shall ordinarily be not over 35 years of age in case of Junior Fellowships and 40 years in case of Senior Fellowship. The Junior Fellowships are normally for a period of three years. The Senior Fellowship is initially for a period of two years but further extension by one year is possible.

II. Special/Desirable Qualifications

(*i*) For Professorship in Botany

Specialization in Physiology and Biochemistry.

(*ii*) For Lecturership in Philosophy

Specialization in any field of Philosophy.

(*iii*) For Readership in Linguistics

Specialization and Research interest in comparative Method and Modern Linguistics Theory.

(*iv*) For Lecturership in Spanish

Training in the Modern Method of teaching the Language.

(*v*) For Lecturership in Russian

Training in the Modern Method of teaching the Language.

(vi) For Readership in Sociology

Intensive field work experience.

Applications for Senior and Junior Research Fellowships on plain paper giving details of age, academic qualifications, experience of teaching, research and publication etc. should be sent to the Head of the Department of Physics directly.

The prescribed application forms for the other posts can be had from the office of the undersigned (Estab IV Section) either personally or by sending a self-addressed envelope and stamps worth Rs. 1.35/- to cover postage

Selected candidates will be required to produce the original documents relating to their age, qualifications, experience etc before joining the appointment.

Applications alongwith the attested copies of Degrees and other Certificates etc. should reach the undersigned not *later than the 15th April, 1973.*

NOTE : 1. It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases in respect of all posts on the recommendation of the Selection Committee.

2. Canvassing in any form by or on behalf of the candidate will disqualify.

3. Candidates called for interview from outside Delhi (excepting Research Fellowships) will be paid contribution towards their Railway Fare as per rules.

(K. P. GOVIL)
Registrar.

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O. IIT, POWAI, BOMBAY-76

Advertisement No. 740

Applications on plain paper are invited from the Citizens of India for the *following posts on or before 30-4-1973* by the Registrar, Indian Institute of Technology, Powai, Bombay-76. Copies of certificates and crossed Indian Postal Order for Rs. 3/- (75 paise for Scheduled Caste/Tribes) for the posts at Serial No. 1 to 5 and Re. 1/- (25 paise for Scheduled Caste/Tribes) for the post at serial No. 6 payable to I.I.T. Bombay-76 should be enclosed. The persons employed in the Govt./Semi Govt. Organisation or Educational Institution must apply through employer. Mention the name of the post and department applied for on the top of the application. Incomplete applications will not be considered. Some posts are reserved for candidates belonging to Scheduled Castes and Scheduled Tribes and Ex-servicemen. Age preferably below 30 years, relaxable in deserving cases. All posts carry allowances such as D.A., C.C.A. etc. as per the rules of Institute. Applicants must state :—

(*i*) Name in full with address

(*ii*) Qualifications such as examinations passed, date of passing etc.

(*iii*) Particulars of past and present employment with salary.

(*iv*) Date of Birth with relevant certificate.

(*v*) Candidates belonging to SC/ST and Ex-servicemen should attached copy of certificate to that effect.

Posts

1. SENIOR RESEARCH ASSISTANTS

Scale of Pay : Rs .325-15-475-EB-20-575.

Department of Electrical Engineering and Mechanical Engineering.

Qualifications :

Master's degree in the appropriate field of Engineering-Persons with a good Bachelor's Degree in Engineering or Master's degree in Physics or Mathematics are also eligible, provided they have two years' research experience in the appropriate, field. Candidates having degree in Chemical/Met. Engg. with experience in electroless plating will also be considered. Selected candidates with aptitude for research may participate in the departmental research programmes and may pursue their studies for doctoral degree.

2. SENIOR TECHNICAL ASSISTANTS

Scale of pay : Rs. 325-15-475-EB-20-575.

Departments of Mechanical Engineering and Metallurgical Engineering.

Qualifications

Bachelor's degree in Mechanical/Metallurgical Engineering or Master's degree in Physics or Mathematics (for Mechanical Engg. or Physics or Chemistry with some experience in Metallurgical Laboratory (for Metallurgical Engg.). Candidates having B.Sc. degree with 7 years' experience in the relevant field will also be considered.

3. JUNIOR TECHNICAL ASSISTANTS

Scale of Pay : Rs. 210-10-290-15-320-EB-15-425.

Departments of Civil Engineering, Mechanical Engineering, Matallurgical Engineering, Physics.

Qualifications :

(*i*) Bachelor's degree in the appropriate field of Engineering. Or Diploma in the appropriate branch of Engineering with atleast three years' experience. B.Sc. with Physics/Chemistry/Mathematics with some experience in the appropriate Lab. or Design Office will also be considered.

(*ii*) Second Class Master's degree in Physics. B.Sc. with experience in Nuclear Electronics will also be considered. Experience in handling laboratory equipment and conducting laboratory classes desirable (for Physics Department).

(*iii*) Diploma in Cinematography. Or B.Sc. with Physics and Chemistry or both with three years experience either as an Assistant Cameraman in a reputed studio or as a Technical Photographer in a wellknown Institution. Qualifications and experience may be relaxed in case of candidates with proven ability of technical photography.

4. WORKSHOP SUPERVISOR—Electrical Engineering Department

Scale of pay : Rs. 250-10-290-15-380-EB-15-470.

Qualifications :

Minimum—S.S.C. with Diploma in Glass blowing. Knowledge of basic electrical devices and connections. Not less than 3 years of experience in glass blowing, experience in different types of glass-metal seals, Silica Working, work on glass blowing lathe. Preferable : Knowledge of basic vacuum techniques, testing of glass components for vacuum etc. Qualifications and experience relaxable in case of higher technical proficiency. The post is operative and not supervisory.

SAMBALPUR UNIVERSITY : SAMBALPUR

ADVERTISEMENT

No. 4052/Estt., Dated the 29/3/73

Applications in the prescribed forms with attested copies of mark sheets and certificates of each of the examination passed are invited for the post of ASSISTANT REGISTRAR, (Two may be appointed).

1. **Qualification:**

(a) A Master's Degree and

(b) Two years experience in teaching or administration.

The academic qualification may be relaxed if a candidate has sufficient administrative experience.

2. Scale of pay Rs 400-40-800-50-950/-

The post carries usual dearness allowance and C.P.F. and gratuity benefits as sanctioned by the University from time to time.

Seven copies of application forms will be supplied from the University office to each candidate in person or on cash payment of Rs. 2/-. Candidates who intend to receive their forms by post are required to send (a) Crossed Indian Postal Order of Rs. 2/- payable to Finance Officer, Sambalpur University, Sambalpur. (b) a self-addressed envelope (23 c.m.x10 c.m.) with postage stamp worth Rs. 2/- affixed to it (besides R. Relief Stamp of 5 paise)) with the words "APPLICATION FORM FOR THE POST OF ASSISTANT REGISTRAR" superscribed on it. Money order or cheques will not be accepted.

The last date of receipt of application in the office of the University at the Sambalpur University Campus, P.O. Burla (Dist. Sambalpur) is 30-4-1973. All communications should be addressed to the Registrar, Sambalpur University by designation only.

The candidates will be required to appear for an interview at their own expences before a selection Committee. Intimation will be sent to all candidates for appearing at interview in due course.

The selected candidates must join within one month from the date of issue of appointment letter.

Sd/- (S. SAHU),
Registrar

(Advt.)

NEW TEXT BOOKS IN ENGLISH FROM THE USSR AVAILABLE IN INDIA

1. LECTURES IN ANALYTICAL MECHANICS, *F. Gantmacher, pp. 265, Rs. 7.00 (Peace Publishers, Moscow)*

This volume of lectures deals with the techniques of analytical mechanics, and their application to Lyapunov's theory of stability, the theory of oscillations, and the dynamics of solids. Elements of modern frequency methods are presented along with classical problems of the theory of oscillations.

In his treatment of electromechanical analogues, the author provides a tool for extending the analytical methods of mechanics to electrical and electromechanical systems.

A detailed description is given of the variational principles and integral invariants of mechanics, canonical transformations, and the Hamilton-Jacobi Equation.

The lectures provide a substantial foundation for studying the special theory of relativity, quantum mechanics and other fields of theoretical physics. They are designed for undergraduate and graduate courses in the mechanicomathematics and physics departments of universities, and also for research engineers and other specialists who want to broaden their knowledge of mechanics.

The late Prof. Gantmacher, D.Sc., a distinguished mathematician, was head of the department of theoretical mechanics in the Moscow Physico-Technical Institute, where his research work was mainly devoted to the application of mechanics in various fields of science. Prof. Gantmacher was the author of a number of publications including the well-known books: Theory of Flight of Uncontrollable Systems, Oscillatory Matrices and Nuclei and Minor Oscillations of Mechanical Systems.

For his services to science and teaching, Prof. Gantmacher was awarded the State Prize of the USSR.

This textbook has been divided into following seven chapters:

The Differential Equations of Motion of an Arbitrary System of Particles; The Equations of Motion in a Potential Field; Variational Principles and Integral Invariants; Canonical Transformations and the Hamilton-Jacobi Equation; Stability of Equilibrium and the Motions of a System; Small Oscilla tions; Systems with Cyclic Coordinates.

2. ELECTRONICS, *I. Zherebtsov, pp. 450, Rs. 5.50 (Peace Publishers, Moscow)*

This book offers a comprehensive introduction to electronics, covering both valve and semiconductor theory and practice, which requires from the reader only a knowledge of elementary physics and applied electricity. Designed as a further addition to a popular series in radio engineering, it can be used both for self-study and as a textbook in technical schools.

The author, Ivan Zherebtsov, has written several books on radio engineering and electronics, which are highly popular with ordinary readers.

This textbook is divided into following sixteen chapters:

Introduction; Electrons in Electric and Magnetic Fields; Electron Emission; Vacuum-Valve Cathodes; Vacuum Diodes; Vacuum Triodes; Operation of the Vacuum Triode with Load; Tetrodes and Pentodes; Mixer, Frequency-changing, Multi-Section and Special-Purpose Valves; Microwave Valves; Gas-Filled Valves; Cathode-Ray Tubes; Crystal Diodes; Transistors; The More Recent Semiconductor Devices; Operational Hints for Electronic Devices,

3. ELECTRICAL ENGINEERING MATERIALS, *Yu. Koritsky, pp. 350, Rs. 5.50 (Peace Publishers, Moscow)*

This is a textbook for electrical engineering courses in technical colleges and will be useful as a source of general information on the materials used in the industry.

The opening chapters give a sufficient account of the basic properties of electrical materials, their classification, and the special features of their gaseous, liquid and solid state. Then follows a section about the fundamentals of the physics of dielectrics, including polarization, dielectric losses, conductivity and electric strength. The physical nature of the processes occurring in dielectrics is presented from the standpoint of modern theory.

The book surveys all the main types of electrical engineering materials, namely, liquid dielectrics, conductors and magnetic materials. Data are given on the physical, chemical and mechanical properties of dielectrics and on their behaviour in service under the influence of temperature, humidity, and radiation.

4. POWER STATION ELECTRICIAN, *S. Leznov and A. Taits, pp. 520, Rs. 5.50 (Peace Publishers, Moscow)*

This textbook describes the main features of supervision of control rooms of power systems, the day-to-day operation of various types of power system equipment, the rules for circuit switching, maintenance and testing. It also describes typical troubles that arise in the equipment of power stations and sub-stations and the methods of handling them and outlines rational ways for operating the main equipment.

Descriptions of the basic features and performance characteristics of the main types of generating and distribution equipment are also provided.

The book can be used as a teaching aid in vocational and technical schools and for on-the-job training of power station and substation electricians and fitters.

This textbook has been divided into seventeen chapters.

5. HANDBOOK OF PHYSICS, *B. Yavorsky and A. Detlaf, pp. 985 Rs. 17.40 (Mir Publishers, Moscow)*

This handbook defines the basic concepts of physics, concisely formulates physical laws and the essence of the phenomena described. All branches of classical and modern physics are covered.

The six main parts of the book include: Physical Basis of Classical Mechanics, Fundamentals of Thermodynamics and Molecular Physics, Fundamentals of Fluid Mechanics, Electricity and Magnetism, Wave Phenomena, and Atomic and Nuclear Physics.

The appendices present the units of physical quantities and their dimensions in various systems, and the values of universal physical constants.

The handbook is intended for use by engineers, technicians, students of universities and engineering institutes, post-graduate students, teachers of high schools, and lecturers of institutes. Being a storehouse of up-to-date authoritative data on the subject, with especial stress laid on basic concepts and mathematical methods, this handbook can be used by anyone interested in the field.

The textbook is divided into the following six parts:

1. The Physical Basis of Classical Mechanics; 2. The Fundamentals of Thermodynamics and Molecular Physics; 3. The Fundamentals of Fluid Mechanics; 4. Electricity and Magnetism; 5. Wave Phenomena; 6. Atomic and Nuclear Physics. The textbook also had two appendices at the end.

6. PETROLEUM, *V. Sokolov. pp 335, Rs. 7.40 (Mir Publishers, Moscow)*

This book presents the up-to-date knowledge in the field of petroleum and gas. It covers a wide range of topics of historical, scientific, and engineering interest. The author discusses modern concepts concerning the geology and geo-chemistry of petroleum and associated gas, their origin, and the formation of petroleum and gas deposits. Methods of petroleum and gas prospecting and production are described, and data on their reserves are presented. The book also deals with such aspects as transportation and storage of petroleum and gas, their processing into various products, etc.

This textbook is divided into the following ten chapters:

1. A Little History; 2. Geology and Geochemistry of Petroleum and Natural Gas, Their Prospecting and Exploration; 3. Production of Petroleum and Gas; 4. Is There Much Petroleum On Our Planet? 5. Transportation and Storage of Petroleum and Natural Gas; 6. Composition of Petroleum and Gas; Methods of Studying Them; 7. Patroleum Processing; 8. Gas Processing; 9. Petrochemical Industry; 10. Cybernetics and Automation.

MAIN DISTRIBUTORS

People's Publishing House (P)Ltd.,
Rani Jhansi Road,
New Delhi-5.

PPH Book Stall,
190-B, Khetwadi Main Road,
Bombay-1.

People's Book House,
Pramshah Manzil, Relief Road,
Ahmedabad.

Manisha Granthalaya (P) Ltd.,
4/3-B, Bankim Chatterjee Street,
Calcutta.

National Book Agency (P) Ltd.,
12, Bankim Chatterjee Street,
Calcutta.

NCBH (P) Ltd.,
6/30, Mount Road,
Madras, Madurai, Coimbatore,
Tiruchirappally,
Thanjaur.

Visalandhra Publishing House,
Eluru Road, Vijayawada.

Visalandhra Book House,
Sultan Bazar,
Hyderabad.

People's Book House,
Opp. Patna College, Patna.

People's Book House,
Hazaribagh Road, Ranchi.

Navakarnataka Publications,
Bangalore-9.

Nabajuga Granthalaya,
Bajrakabati Road, Cuttack.

Himachal, Book Centre,
4, The Mall, Simla.

Punjab Book Centre,
1940, Sector 22 B,
Chandigarh.

Vijay Stores,
Relief Road, Ahmedabad.

Vijay Stores,
Commissariat Bldg., 1st Floor,
231, D.N. Road, Bombay-1.

Kitab Ghar,
Chaura Rasta, Jaipur.

Prabhat Book House,
Trivandrum, Ernakulam,
Alleppey, Calicut, Cannanore,
Udyogamandalam, Quilon.

New Age Book Centre,
Near Chowk State Bank of India,
Cheel Mandi,
Amritsar.

Punjab Book Centre,
Post Office Road,
Jullundur.

Progressive Book House,
Shillong Road, Panbazar,
Gauhati.

Progressive Book Depot,
Motia Park, Sultania Road,
Bhopal.

Chetana Book Centre,
1, New Market, Hazaratganj,
Lucknow.

INDIAN INSTITUTE OF SCIENCE, BANGALORE

SESSION 1973-74

Opportunities for advanced studies and Research in Science and Engineering

Facilities for research at the Institute exist in the broad areas associated with the various departments in Science and Engineering Faculties. However, the main areas in which identified vacancies exist are indicated below:

SCIENCE FACULTY—RESEARCH AREAS

Group 'A'—Physics and Mathematical Sciences

1. Physics:
   Lasers and spectroscopy; Dielectric and ferroelectric materials; Molecular Biology; Critical point phenomena; Semiconductors; Magnetic resonance; Theoretical physics.
2. Applied Mathematics
   Fluid mechanics; Elasticity.

Group 'B'—Chemical and Biological Sciences

3. Inorganic & Physical Chemistry
   Inorganic & mineral chemistry; Molecular structure; Electrochemistry; Polymer chemistry; Molecular biology.
4. Organic Chemistry
   Synthetic organic chemistry; Physical organic chemistry; Bio-organic chemistry; Molecular biology.
5. Biochemistry
   Proteins and enzymology; Lipids; Plant biochemistry and cellular biology; Endocrinology; Nucleic acids and molecular biology.
6. Microbiology & Pharmacology Lab.
   Molecular Biology.
7. Molecular Biophysics Unit
   Biopolymer conformation from theory and experiment; X-ray crystallography; Molecular biology.

ENGINEERING FACULTY—RESEARCH AREAS

Group 'C'—Electrical Sciences

8. Electrical Engineering
   Power system; Digital instrumentation; Remote sensing; Active networks and filters; Power electronics and thyristor convertors; Bioengineering; Pattern recognition and learning system; Non-linear systems.
9. Electrical Communication Engg.
   Digital communication; Semi-conductor materials and devices; Optical information processing; Acoustics and speech information processing; Elastic circuits and systems; Microwave acoustics.
10. High Voltage Engineering
    Electrical discharges in gases and vacuum; Electrical insulation engineering and power apparatus; Over voltage phenomena and protection; High voltage industrial applications.
11. School of Automation
    Modelling and simulation of large scale systems; Digital systems; Computer software: Pattern recognition; Control and instrumentation including flight control, fluidics and fluid power systems.

Group 'D'—Mechanical Sciences

12. Aeronautical Engineering
    Aerodynamics and fluid mechanics at subsonic, supersonic and hypersonic speeds; Space dynamics; Structural dynamics including aircraft vibrations and helicopter dynamics; Experimental stress analysis; Composites; Computer based design and analysis; Finite element methods; Meteorology.
13. Internal Combustion Engineering
    and
14. Mechanical Engineering
    Thermal systems engineering; Foundry science and engineering; Mechanical system analysis and design; Turbomachines and I.C. engines; Instrumentation and automatic control.
15. Civil & Hydraulic Engineering
    Fluid mechanics including cavitation; Water resources including river mechanics; Structure-soil interaction studies; Strength deformation of soils; Structural dynamics including concrete structures; Experimental stress analysis.
16. Metallurgy
    Mineral dressing; Physical metallurgy.
17. Chemical Engineering
    Transfer process; Reaction engineering; Thermodynamics; Process dynamics and control; Environmental engineering.
18. Industrial Management
    Personnel management and industrial psychology; Financial management and managerial accounting; Economic planning and development.

M.E. Course (2-year duration)

(Suitable choice of electives will lead to specialisations in the fields mentioned under each Department).

1. Aeronautical Engineering
   Aircraft structures; Aerodynamics; Rockets and missiles.
2. Chemical Engineering
   Chemical process & plant design; Transfer processes.
3. Civil & Hydraulic Engineering
   Hydraulics; Structural engineering; Water resources engineering; Soil mechanics and foundation engineering.
4. Electrical Communication Engg.
   Electronics; Microwaves; Acoustics; Computers and information theory.
5. Electrical Engineering
   Applied electronics; Power system engineering.
6. High Voltage Engineering
   High Voltage Engineering
7. Internal Combustion Engineering
   and
8. Mechanical Engineering
   Internal combustion engineering; Automobile engineering; Propulsion engineering; Thermal systems engineering; Foundry science and engineering; Mechanical system analysis and design.
9. Metallurgy
   Physical metallurgy; Chemical metallurgy.
10. School of Automation
    Control and computer sciences.

M. Tech. Course in Physical Engineering
(2-year duration)

An inter-faculty course with emphasis on Solid state physics, Materials science, Instrumentation and techniques, intended for engineering graduates and M.Sc.'s in Physical Sciences.

B.E. Courses (3-year duration) in Electrical Communication Engineering; Electrical Technology and Metallurgy. Selections for B.E. programmes will be through an 'Entrance Examination' about which separate announcement has been issued.

Diploma Course in Industrial Management (1-year duration)

Entry open for candidates with engineering and non-engineering backgrounds.

Diploma Course in Molecular Biochemistry (1-year duration)

Teachers and Research Workers in University Departments, Medical Colleges or Research Laboratories, subject to possessing the minimum qualifications, will be given preference for admission.

Eligibility for Admission

The Indian Institute of Science encourages inter-disciplinary studies. Entrance requirements for courses of study and research are broadbased. Full details are provided in the booklet "ADMISSION ANNOUNCEMENT FOR 1973-74". Generally, the following are the minimum qualifications:

(i) **Research/M.E./M. Tech./Diploma Course**

Bachelor's degree in Engineering or Technology OR M.B.B.S. OR Master's degree in Science/Arts/Commerce in relevant fields. The minimum requirement is a second class with at least 55% marks in the aggregate in all cases.

For Candidates belonging to Scheduled Castes/Scheduled Tribes the minimum requirement is a second class with at least 50% marks in the aggregate.

(ii) **B.E. Courses**

Bachelor's degree in Science (Physics, Chemistry and Mathematics) FIRST class with at least 60% marks in the aggregate.

For Candidates belonging to Scheduled Castes/Scheduled Tribes the minimum requirement is a SECOND class with at least 55% marks in the aggregate.

NOTE: The selections for the B.E. courses will be through an entrance examination. For details please see a separate announcement issued in this regard.

In general a much higher level of academic achievement is expected than the minimum qualifications specified above.

Scholarships/Fellowships

All research, M.E., M. Tech., and Diploma students and 15% of the B.E. students can avail of Institute scholarships ranging from Rs. 75/- to Rs. 400/ p.m. In addition, there are other scholarships and fellowships ranging from Rs. 75/- to Rs. 500/- p.m. sponsored by the TATA Trusts, TISCO, Tata Electric Company, UGC, CSIR, ICMR, INSA, NAL, DAE, State Governments and others. The enhancement of the value and the number of B.E. scholarships is under consideration.

Concession to Candidates Belonging to Scheduled Castes/Scheduled Tribes

(i) 20% of the seats for any course/research will be available for qualified candidates beloning to SC/ST;

(ii) All candidates belonging to SC/ST who are applicants for admission to the Institute and possessing the minimum qualifications for admission as applicable to SC/ST candidates will be called for test and interview and those found suitable will be offered admission within the above 20% seats mentioned in (i);

(iii) All candidates belonging to SC/ST who are called for interview before admission are paid a contribution equivalent to third class railway fare both ways at the admissible rates by the shortest route.

(iv) All candidates belonging to SC/ST are charged concessional fee for the application forms and Handbook of Information as detailed in the Admission Announcement Booklet supplied free on request.

Besides the above concession, certain fee concessions are also available to candidates belonging to SC/ST selected for admission for the session 1973-74. For details please see the Admission Announcement Booklet and the Handbook of Information which can be obtained following the direction given below:

How to Apply for Admission

First Step

Candidates who possess the qualifications outlined above may send immediately an enquiry to the REGISTRAR, INDIAN INSTITUTE OF SCIENCE, BANGALORE 560012, accompanied by a self-addressed and stamped (0.30 paise plus 0.05 paise refugee stamp, if applicable) envelope of the size 23cms x10cms. The cover addressed to the Registrar should be superscribed "ADMISSIONS" on the left hand top corner of the cover.

Second Step

Immediately on receipt of the self-addressed stamped envelope, the Institute will send a booklet "Admission Announcement" containing details of the admission qualifications, for research and courses, scholarships and fellowships available, hostel facilities, fee concessions to candidates belonging to SC/ST, etc.

Third Step

Candidates are advised to go through the booklet carefully and satisfy themselves that they possess the qualifications prescribed for admission to the particular course or for research they intend to apply for. They should send a requisition for the application form(s) and for a copy of the Handbook of Information following the directions given in the booklet "Admission Announcement". This requisition together with postal order(s) for the *proper amount* should reach the Registrar on or before 21 April, 1973.

Fourth Step

Candidates should fill in these application forms carefully following the directions given. They should send in the completed application form(s) together with attested copies of certificates/marks statements, etc. so as to reach the Registrar latest by 5.00 p.m. on 12 May, 1973.

NOTE: Application forms received after the due date will not be considered. However, for research, it may be possible in special cases, to consider late applications at later points of time, provided vacancies exist.

Prescribed Dates

Last date for receipt of requisitions for application forms: 21 APRIL, 1973.

Last date for receipt of completed application forms 12 MAY, 1973.

Announcement for Admission to B.E. Degree Courses

The admission to the B.E. degree course in

(1) Electrical Communication Engineering (2) Electrical Technology and (3) Metallurgy

at the Indian Institute of Science, Bangalore beginning on 1st August 1973 will be made on the basis of a common All India Entrance examination to be conducted at the following centres on 20th and 21st June 1973:

(1) Indian Institute of Science, Bangalore, (2) Indian Institute of Technology, Madras, (3) Indian Institute of Technology, Powai, Bombay, (4) Indian Institute of Technology, New Delhi, (5) Banaras Hindu University, Varanasi.

The examination will consist of one written paper in each of the following subjects:

(1) *Mathematics*; (2) *Physics*; (3) Chemistry and (4) General knowledge and Engineering aptitude. The selection for admission to the course will be based entirely upon their performance in this examination.

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(a) Candidates who have the above minimum qualification;

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Other concessions to Candidates belonging to Scheduled Castes/Scheduled Tribes

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(ii) All candidates belonging to SC/ST who are applicants for admission to the Institute and possessing the minimum qualification for admission as applicable to them are eligible to sit for the entrance examination and those found suitable after the entrance examination and those found suitable after the entrance examination will be offered admission within the above 20% seats mentioned in (i);

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(iv) All candidates belonging to SC/ST admitted to the course will be paid an Institute scholarship of Rs. 75/- per month. Besides, there are other concessions in fees and other charges, details of which are available in the Admission Announcement booklet which will be supplied along with the prescribed application form.

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Enquiries should be received by the Registrar for the application form on or before 21 April, 1973 and the completed application form together with the registration fee of 10/- payable by postal order towards entrance examination (registration fee exempted for scheduled caste/scheduled tribe candidates) should reach the Registrar latest by 12 May, 1973.

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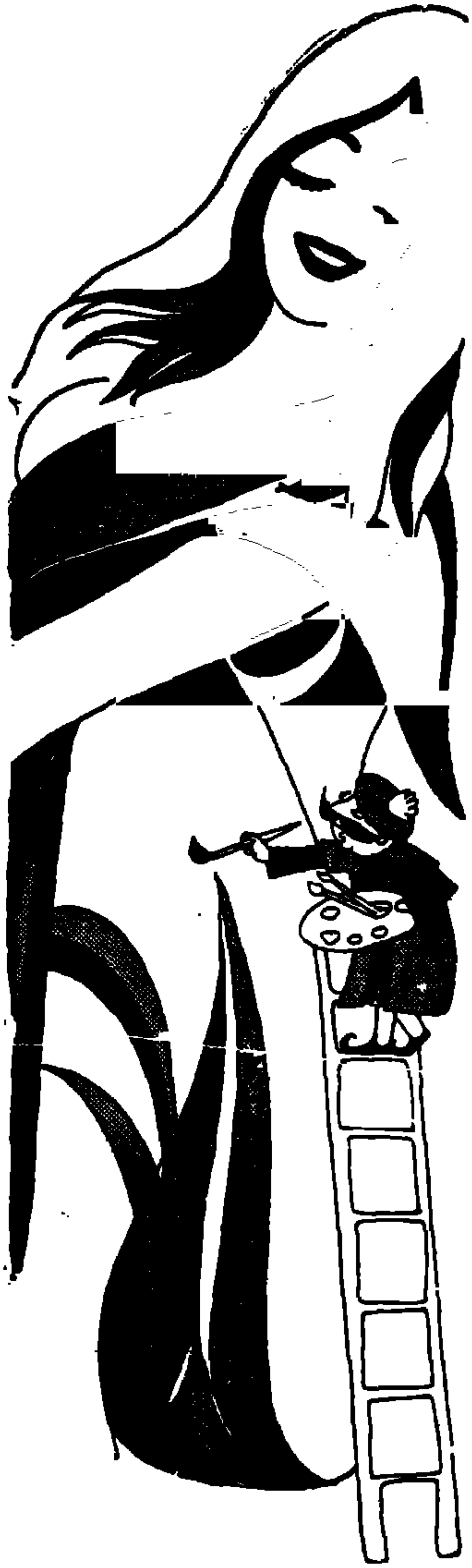

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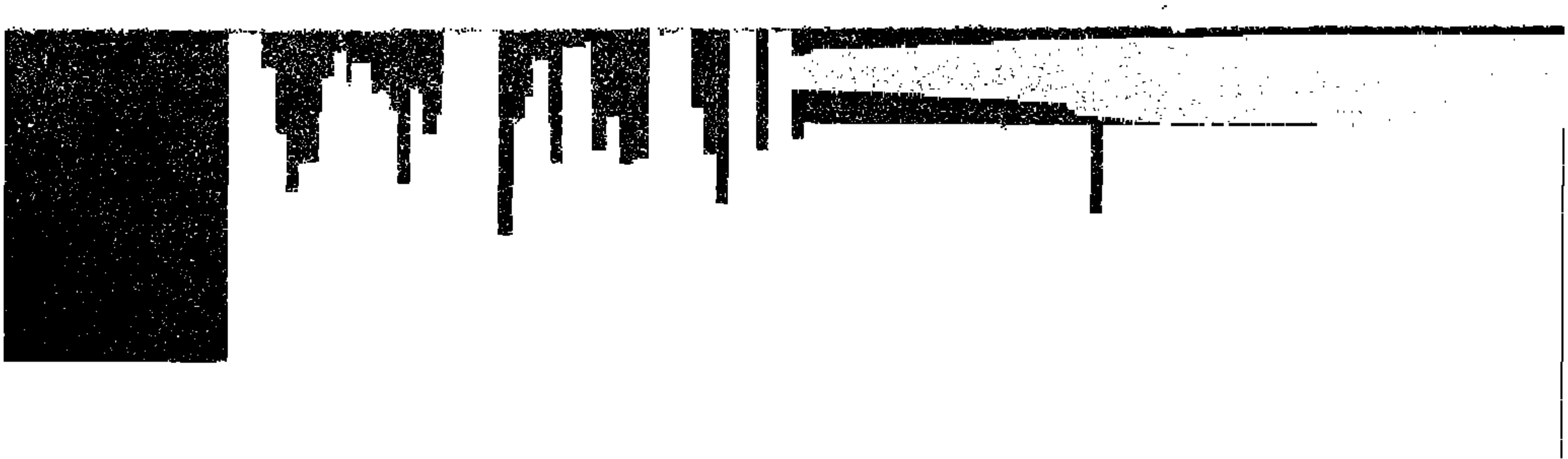
INSTITUTIONAL RESEARCH AS ADJUNCT TO UNIVERSITY MANAGEMENT



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ASIAN NATIONS CONFERENCE ON YOUTH POLICIES HELD AT JAKARTA

*Shiv Khare

Participants in an informal discussion before the inaugural ceremony

In the past decade, spurred by student dissent and demonstrations a number of governments of Asian countries have initiated new programmes in the field of youth affairs. These range from youth participation in decision-making processes to their involvement in community development projects. There is hardly an Asian country, which has not set up a new programme for its youth during the course of the last few years. And yet all these efforts have been undertaken mainly to meet immediate demands rather than in fulfilment of well thought out policies.

In this difficult process of determining youth programmes some initiatives have brought dividends while others have failed. With its limited resources, Asian countries can hardly afford to depend upon trial and error method in determining priorities and programmes, especially so in an entirely new field like youth affairs. In order to benefit from each other's experiences, top ranking government officials, heads of universities and youth activists from 13 Asian countries gathered in Jakarta from April 2 to 6 to participate in the Asian Conference on Youth Policies. Sponsored jointly by the Indonesian Ministry of Education and Culture and the Brussels-based International Institute for Educational Studies (IIEE), the meeting provided, for the first time, an opportunity to all the components involved in youth field to hold free and frank discussions on the evolution of youth policies in participating countries. The emphasis of discussions was not so much on programmes as on fundamental policies.

**Mr. Khare is the Indian representative of International Institute for Educational Studies.*

The participants came to the conclusion that the difficulty of the society at large to integrate segments of young people in the mainstream of life has given rise to a situation where anti-Establishment agitation has become an integral part of the activity of youth leaders. Otherwise, most youth leaders feel, their leadership would be threatened. On the other hand, half-hearted attempts to involve young people in decision-making processes has benefited solely the educated youth, mainly students concentrated in urban areas. In order to correct this imbalance, methods would have to be devised not only to ascertain the aspirations of rural youth, which represents the large majority of young people, but also devise ways by which their participation in arriving at important decisions is assured. To give effect to this policy, the governments would have to set up an administrative machinery at the national level which is able and empowered to deal with all segments of young population, namely students, rural youth, young workers, white collar youth etc. Several countries present at the Conference — such as Thailand, India and Cambodia — reported that they had already set up high-level and high powered bodies to co-ordinate youth programmes which normally fall under the supervision and direction of different government departments or ministries. Malaysia in fact has gone one step further and some two years ago set up a separate ministry to deal with youth affairs.

A great deal of attention was paid to projects which involve young people in the national development tasks. As some participants put it, "national development is inconceivable without direct involvement of young people". In this connection it was argued that students, who have the benefit of formal and expensive education, as well as sufficient leisure time, should be given the opportunity to participate in national development tasks. This would not only give them the chance to help solve the problems of the underprivileged sections of the society, but also provide them with valuable educational experience and bring them closer to the realities of rural life and its hardships. It was felt that in the context of developing Asian countries, student and youth organizations should place community development programmes high on the list of their priorities

The Conference was concerned with the increasing problem of youth unemployment and suggested that in addition to traditional remedial programmes, the governments should assist efforts by youth organizations to create self employment.

A great deal of attention was also paid to the need for closer regional co-operation in implementing youth programmes and policies in the participating countries. The Conference suggested that efforts be made to set up an Asian clearing house on youth policies and programmes. This would enable individual countries to learn from each other's mistakes without necessarily duplicating them. At the same time information on successful programmes carried out in one country would enable others to initiate similar policy. Preliminary consideration given to the possibility of setting up an Asian Youth Foundation already recieved favourable response. Because of its expertise in youth matters and wide contacts, the International Institute for Educational Studies (IIEE) was requested to further pursue some of these ideas.

VIEW POINT

I read with great interest Dr. Gurugunta's plea for "Political Democratization of Delhi University" in UNIVERSITY NEWS, April 1973. I find it difficult to agree with her conclusion that political democratization of Delhi University is neither a break-down of authority nor of the community but a movement towards creating the democratic ethos. From what little I have been able to observe the colleges of Delhi University, I think that we are heading towards anarchy and chaos with a faint hope that some day order would emerge out of chaos.

Authority has been so diffused today that it is difficult to locate it. Committees meet again and again but fail to take a decision. Staff council meetings are quite stormy and monopolised by activists with firm political commitment and nebulous academic attainments. Pandemonium is often created at staff council meetings, abuses are freely hurled and decision-making becomes difficult. To cite instances the staff council of a college debated inconclusively whether the college be opened on Saturday or on the next Monday. This debate went on for hours on Friday evening. When the debate came to an end it was practically impossible to open the college on Saturday. Yet the learned don managed to keep themselves busy in an eminently fruitful discussion.

I am not opposed to democratization provided teachers evolve a code of conduct, maintain high professional standards and develop professional skill and pride. I don't mind political commitment, if it is not at the expense of academic commitment. I agree with Amrik Singh that democratization without professional growth and pride cannot succeed.

Dr N.P. Singh,
Rajdhani College,
New Delhi

Institutional Research As Adjunct To University Management

B. S. Sheehan

Recent interest in university management has grown because institutions must plan and operate in increasingly complicated circumstances. Rapidly changing social, economic and political pressures within the universities and on the institutions from their constituencies have stressed traditional university administration. Taboo a few years ago, it is now widely held opinion that modern methods of management must be adapted to the universities.

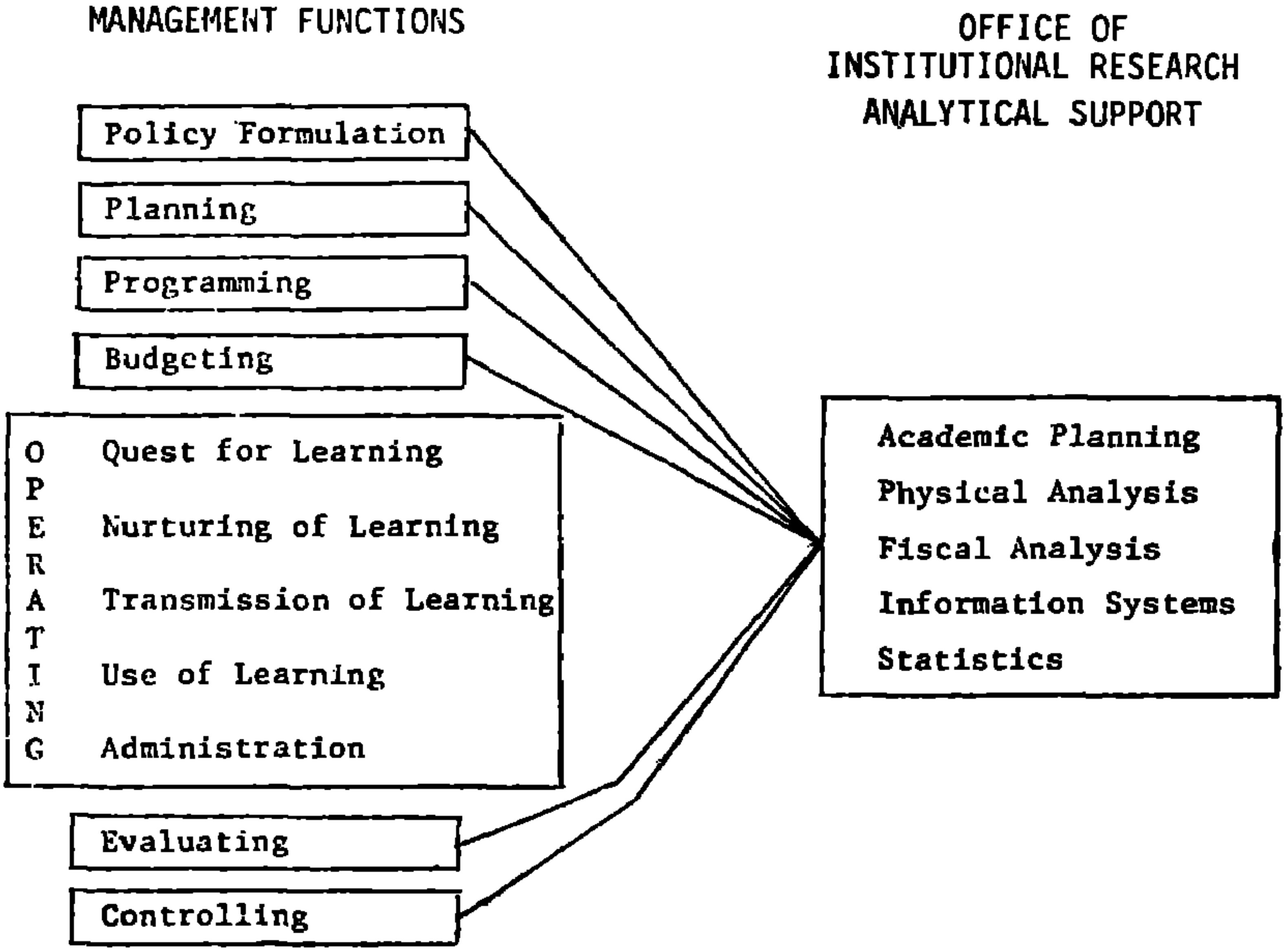
Although some form of institutional research is not new to universities, no definition yet has gained a consensus because institutional research is not a single area of study, nor a specific set of tools and techniques. Rather, it is better characterized by the approaches to problem-solving of its practitioners. Institutional research in the universities is the application of systems science to governance problems.

University Management

University management does not differ generically from that of any enterprise. The practice of determining and articulating goals and objectives; of formulating policies and developing plans; of allocating resources for execution of programs and controlling and operating the institution; and of monitoring and evaluating the results, must go on in universities. What sets it apart is university organisational structure, traditions of consensus-seeking decision making, academic freedom and institutional autonomy, and the difficulties in quanti-

FIGURE 1

Management Analytical Support



Paper presented by **Mr. Bernard S. Sheehan** *to the Canadian Society for the study of Higher Education. He is the Director of Institutional Research at the University of Calgary.*

fying the benefits of the educational process.

The essential complexity of university management is demonstrated by the fact that management functions must be accomplished within the elements of the organizational structure. (Figure 1)

The management function of administration includes the non-academic operating functions. These are those activities necessary to the running of the physical plant, daily business affairs, student admission, records and so on. The academic operating functions of quest for learning, nurturing of learning, transmission of learning, use of learning and administration are collectively termed operating functions. The proposed OIR relates directly to the other management functions and only indirectly to the operating functions. This is not to suggest that the operating functions do not require analytical support, and in fact much fundamental research, but only that these considerations are outside the scope of the present proposal.

OIR Operations

As viewed by analytical support staff, university management can be described by five steps: recognition of situations requiring action; explicit formulation of problems; development of alternative solutions including actions required and consequences of implementation; presentation of alternative solutions; and, finally, management's understanding of solutions and acceptance of one of the alternatives. Within this framework, two styles or modes of operation span the spectrum of possible OIR activities. These are the active and passive modes.

The passive mode, "Statistical Data Collection," is characterized by the OIR's provision of statistical data on request and the solution of specific problems using an algorithm given by policy formulators. Successful operation in this mode builds policy formulators' confidence in the OIR, gives analysts experience in dealing with policy formulators and their problems, and leads eventually to greater involvement in the management process. The active mode, "Professional Participation," is characterized by the OIR's *anticipation* of information required and of problems for which the office will be asked to supply alternative solutions for the consideration of managers. Operating in this mode, the OIR can improve the efficiency of university management. It can successfully operate in this way only with the confidence of policy formulators. This confidence is maintained if the office conceives its role as being not one of policy formulation but of assisting policy makers to come quickly and assuredly to their conclusions. The OIR must be sensitive to informational needs of managers but must remain neutral in the final policy decision. Thus, the purpose of anticipation is to provide decision makers with the best information, prospect and tools so that their time and talents can most effectively be brought to bear on judgments that have to be made.

Let's consider three levels of the active mode. In Active Mode, Level 1, "Anticipation of Informational Needs," the OIR provides statistical and other information on request as in the passive mode. However, to a certain extent the request has been anticipated. This implies that OIR personnel are aware of the problem to be solved, understand the sensitive issues involved, and can determine important variables before an explicit request is received. This anticipation includes development of the necessary capability to retrieve the information and to formulate alternative solutions to given management problems.

Active Mode, Level 2, "Systems Initiation," also involves anticipation but differs from Level 1 in that anticipation may not be with respect to a specific solution but rather to a class or category of problems. This is an awkward level of operation because it involves initiatives on the part of the office which may not seem important to busy executives. However, because it is involved in many facets of central university administration which cross organizational boundaries, the OIR may see the need for management cosiderations before the need can be generally recognized. By anticipating management information needs, the office sometimes finds that it requires information which is not available. Under such circumstances, the OIR may urge development of the necessary systems to ensure that information is ready when needed.

If possible, the office should not become involved in the design, development and implementation of new systems, especially if other departments can do the job. In general, involvement beyond assisting with systems specifications or acting as consultants to departments charged with systems development should be avoided. Greater involvement may give the OIR vested interest in some aspect of university operations, siphon off its resources from areas of more legitimate concern, and lead to the possibility of tensions developing between the office and operating departments concerned.

Operating in Active Mode, Level 3, "Management Tools and Techniques," the OIR must anticipate styles of university management likely or possible in the near future. Universities are complicated, decentralized institutions, and the management decisions to be taken are as difficult as in any organization. Also, university policy formulators are usually professional scholars and teachers, and amateur managers. Thus, the OIR role in this level is to suggest, as the opportunity arises, that new tools and techniques may prove useful in solving certain problems. Since these new tools may not be familiar, the OIR may have to instruct decision makers in their potential and use. As in Level 2, the consequences of such initiatives are best understood by the senior administrative officer in the area and discussions of this sort should not be precipitated without his full support.

As a consequence of the proposed theory of the role of institutional research, each office must decide how to allocate resources over a spectrum of activities ranging from academic research in higher education to meeting ad hoc requests for statistical data. This is not a new dilemma and the unique circumstances of each university make generalized solutions difficult. The OIR must do research if it is to offer practical alternative solutions to management problems, yet it must answer some ad hoc requests to remain in touch with current management situations and to gain or keep the confidence of university managers.

Given the situation in which Universities find themselves today, it seems that offices should focus more towards the research end of the spectrum. The problems of academic planning and resource allocation need to be better understood in each institution before satisfactory solutions will be found. The state of the art in university application of such ideas as planning programming budgeting systems, management information systems and modelling are primitive. Yet, their potential to solve current management problems seems promising. To meet the need for ad hoc statistical data for short-range administrative purposes, OIRs should encourage growth of analytical expertise within operating departments and senior administrative offices. People with these skills and aptitudes in operating departments are closer to the details of the particular problems and can use the resources of the OIR as required, more efficiently.

The "interface" is an important aspect of institutional research as adjunct to university management. This facet of institutional research involves assisting university managers with the definitive formulation of specific questions to which they seek answers and then presenting answers or alternative solutions through a medium that makes the information most useful to the questioner. Figure 2 illustrates the support role cycle.

Unless there are good two-way communications between the person with the problem and the problem solver, there is not likely to result a satisfactory solution. The OIR must develop the knack and skills of ensuring that the questioners have stated their request for information unambiguously in a way that will yield them precisely the required information if the request is exactly met. If the information or alternative solutions are not effectively presented, much of the work of the OIR can be lost. People in the OIR must develop skills—essentially teaching skills, including the use of several media—to work at the interface.

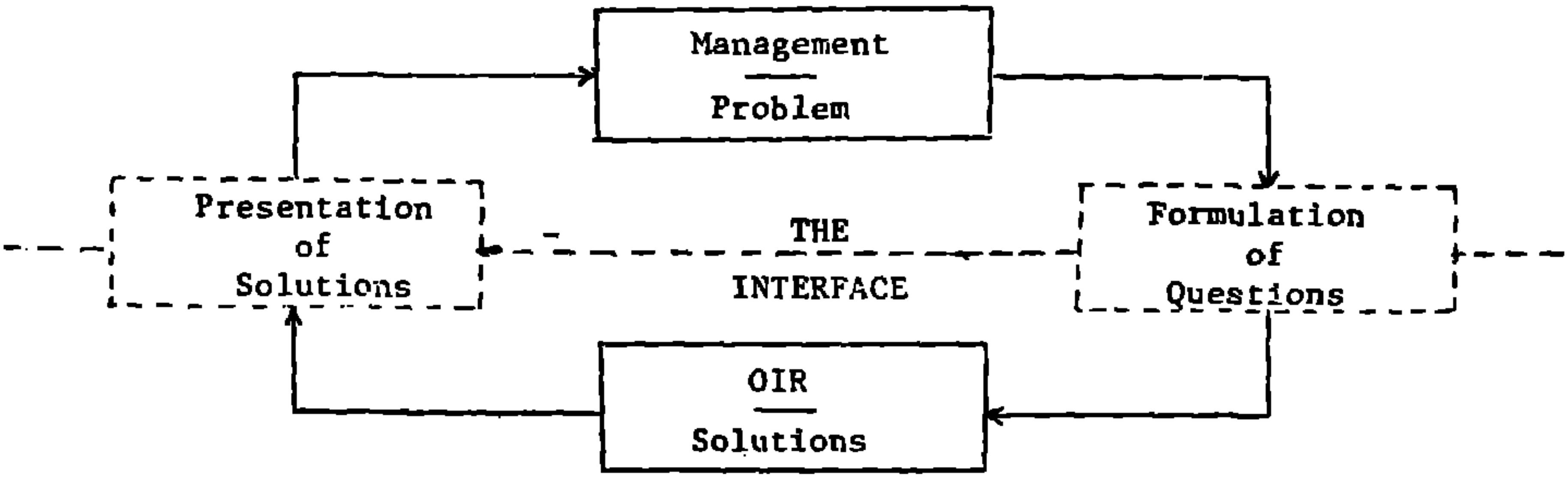
OIR Organization

The most important characteristic of the proposed OIR is that it operates as an applied research team. Projects undertaken are interdisciplinary because the office supports diverse management activities. The categories of studies done will change with time and type of institution, but since all projects relate to the informational needs of senior management, they involve considerations crossing functional and organizational lines.

Team members must be experts in the different fields of university management and competent to serve as consultants and staff personnel to the appropriate university officers and committees. Each team member is dependent on the other because they have the common purpose of supplying management information useful to policy formulation, planning and decision making. The team must be small enough so that analysts can effectively communicate with each other, yet large enough so that the major areas of university management are represented.

FIGURE 2

The Support Role Cycle



Since university management can be divided into three main spheres—academic, physical and fiscal—the proposed office should have analysts responsible for projects which are primarily within these spheres. As a consequence of the proposed theory of OIR operations, described in the previous section, the office also needs analysts expert in statistics and information systems.

Since academic policy formulation and planning is the keystone to university management, the academic planning analyst will tend to be the technical coordinator of the office. His tasks include assisting academic policy and planning committees, working with departments and faculties which seek the help of a professional planner, as well as assisting the director and analysts with interface aspects of projects. The academic planning analyst will normally be the project leader on studies that do not fall primarily into a field of specialiy of one of the other analysts.

The physical analyst is primarily concerned with space and facilities aspects of university management. He would typically do long-range and short-range space planning studies, and space, facilities and equipment inventory and utilization studies. Ideally, his main efforts would be in the development of methodologies for these studies and assisting with the improvement of the informational systems needed for space management.

The fiscal analyst's task is similar to that of the physical analyst, but in regard to the management of noncapital resources. This analyst relates to policy formulation and planning committees on fiscal and budgetary matters. He would become involved in development of methodologies and pilot studies of academic program costs, internal pricing of services, implementation of planning programming budgeting systems, as well as assist with development of the necessary informational systems to support management needs for resource allocation information.

The statistician supplies the other analysts, management, and other internal and external agencies with statistical information on the university and other subjects related to higher education. This anaylst is responsible for the consistency of data element definitions used within the OIR and as far as possible within the university. To avoid many requests for routine data, the statistician may prepare a Fact Book containing historical statistics on students, staff, degrees, space and finances. The statistician should also be responsible for university projections of student enrolments as requested by management and required by the analysts.

The information systems analyst assists in matters related to the coordinated development of university information systems. Since university managers see the OIR as a management information system, the office has a vital interest in ensuring that management needs for information are design and operating criteria for all university information systems. Besides being an information expert, this analyst must be sensitive to the concerns of the operating departments. The implementation problems asssociated with MIS in industry are complicated in universities because of the diffused responsibility resulting from the university's organizational structure and management traditions. He must convince the operating departments that management needs and the needs of other operating departments for information are critical to effective operation of the university.

Working with the other analysts, the information systems analyst will encourage adoption of university information system rules and procedures with respect to access, reading and writing on files, systems' design and maintenance which ensure that needs of all users including senior management, are considered explicitly. Because of OIR interest in management information, this analyst will be concerned with the compatibility and integratibility of data from all offices or systems. It is a measure of the traditional decentralized organizational structure of universities that few, if any, other offices will have continuing interest in using information from many sources to synthesize management information.

The need for an integrated university information system will become more apparent as universities adapt more of the newer management tools and techniques to solve resource allocation problems. The use of models to simulate university operations is a good example. Even the simplest models need accurate, timely and comparable information as inputs for model runs and to set system parameters. More advanced models have not been used in universities yet; the chief technical reason for this is usually the inadequacy of the university's data base. Attempts to use models in university management have as their major advantage the knowledge about the institution gained in building the model. This includes the explicit, detailed knowledge of the inadequacies of administrative information systems. The information systems analyst will coordinate the model development work of the analysts and thus be concerned with both the interface and technical problems of modelling.

Besides describing OIR organization, the above also illustrates the professional requirements of the analysts. However, it must be emphasized that the most important characteristic of an analyst is his ability to relate his speciality to the solution of university management problems, whether primarily in his field or not.

The effectiveness of the analysts is greatly increased by the technical support of assistant analysts. These junior professionals should be qualified at least to a first degree in fields such as mathematics, computer science, management science, economics or engineering. Assistant analysts should not be assigned permanently to one analyst but should work on projects which utilize their talents and offer them the opportunity to learn the many facets of institutional research. As part of the team they should also have some-office-wide responsibilities.

The OIR director has the dual tasks of managing the office and being the contact with the president, senior university officers, and policy formulators. Working with other senior university officers, he must decide the extent of OIR involvement in

Continued on page 14

Science in Present Day Education

Dr. G.S. Pathak, the Vice-President of India, addressed the second annual convocation of the Himachal Pradesh University this year. He said the basic aim of education was the cultivation of the mind, but today the education additionally must respond to the challenges of the society and has to fulfil its needs. The students must be well equipped to participate in all the stages of the nation's developmental activities.

Referring to the role of intellectuals in the Society he said that they have to help in the formation of public opinion which is a fundamental basis of democratic life. On one hand he is to be in contact with ever changing present and on the other hand he is expected to guide the moulding of opinion on all matters of importance in public life. Of late there have been attempts to find a place for intellectuals in Indian politics and to induct them into decision making centres on an entirely new basis in the capacity of professional technocrats. Universities are places where intellectuals are bread. Some of the intellectuals would prefer to remain aloof from politics but with the dignity of their knowledge and in the enjoyment of their academic independence and intellectual freedom, they could spark new ideas and make dispassionate and constructive criticism.

He remarked that education in Science is perhaps the most valuable national investment and an effective instrument of social and economic development. Most of the problems facing the nation demand the special skills and knowledge of scientists for their solution. For instance, it lies in the field of engineer and scientist to find ways and means of utilising and distributing excess water so as to save the country from droughts and floods. Progress in agriculture again depends on science and engineering. Our industrial development is wholly tied up with Science and Technology. Science is one of the most powerful factor—perhaps the most decisive — which determines the structure of society, and which act on the body of our beliefs on our understanding and on our aspirations. This is an age of expanding knowledge in Science and Technolgy. Dr. Pathak said that the study of humanities is also essential for the good of mankind. Literature and philosophy should inspire and inform modern man and guide as to be the most beneficial manner in which science can be used for the happiness and prosperity of humanities.

He also commended the National Service Scheme for the universities and exhorted the students to work among the people with a sense of mission and endeavour to reduce ignorance and illiteracy particularly in the villages. He appreciated that a Citizen Forum (Vichar Sangam) has been organised by the Himachal Pradesh University with the object of bringing the university and the people together.

INSTITUTE OF SOCIALISM

The Mysore University has decided to start an Institute for Scientific Socialism and Democratic Socialism on the lines of the Institute of Kannad Studies. A committee is being set up to go into the details of the question. It has also been agreed to start a post-graduate centre at Shimoga. From the next academic session a diploma course in Journalism would also be started. A sum of rupees one lac has also been provided to start post-graduate departments of Econometrics and Applied Economics.

SUMMER SCHOOL COURSES FOR ADULTS

Department of Continuing/Adult Education at the M.S. University of Baroda proposes to organise a number of summer school courses for adults during vacations this year. The objective of such courses is to bring community and the university closer by providing an opportunity to the adult community to share in the benefits and dividends of its university — its talent, research and resources. With the help of faculties and departments of the university the courses are being organised. All these courses shall be open to the people of Baroda as well as from outside. Those coming from outside Baroda would have to make their own boarding and lodging arrangements. Some of the more important courses are mentioned below:—

Humanities and Social Sciences

(i) Cultural heritage of Gujarat.

(ii) Indian Economic Development.

(iii) Introductory course in Linguistics and Language teaching

(iv) Training course for teacher-librarians

Education

(i) Refresher course for the teachers of new Mathematics and Science.

(ii) The course in Institutional Planning for secondary school principals and supervisors.

(iii) Methods of evaluation in secondary schools.

(iv) Museum education and methods of taxidermy

Fine Arts

(i) Creative Sculpture.
(ii) Photography for Engineers.

Home Science Education

(i) Elementary foods and nutrition.
(ii) Interior decoration.
(iii) Consumer Education.

VALUES IN EDUCATION

The Tenth Convocation of Kurukshetra University was addressed by Mr. K.P.S. Menon, Chairman, Sangeet Natak Academy. While referring to the examination system of Indian universities, he said that there are countries and universities which give exaggerated importance to examinations; others which underrated them. China used to belong to the former category and Oxford to the latter. He said that China was the first country to devise the system of competitive examination for entry into the public service. These examinations formed a tremendous test of memory. The subjects for the examinations were confined to the writings of Confucius. For nearly 2500 years China was ruled by Confucian scholars, known as mandarins. They were distinguished by their urbanity, dignity and moderation, but lacked practical ability and the capacity to stand up to a crisis. But after the Cultural Revolution things changed suddenly.

Oxford stands at the other extreme. There the examinations were, not a bugbear. Clutton Brock, a famous art critic after visiting Oxford said, "The first class is excessive ostentation; the second class is pretentious mediocrity; the fourth class is obvious failure; but the third class is the golden mean". Stephen Leacock also once remarked that "the only thing that an oxford degree means is that a man has lived at Oxford for three years and managed to keep out of Jail". In reality it means that a man has lived the full and ebullient life of an intimate intellectual centre for three years. The residential system, the tutorial system, the numerous societies, culminating in the Oxford Union, which used to be great breeding-ground of future Prime Minister, and the day-long and often night-long discussion among the undergraduates themselves, all this develops an atmosphere in which one's innate faculties begin to blossom. Besides, the undergraduate begin to cultivate a sense of values and abide by them, wherever their lot may be cast. These values had remained more or less constant for a long time, but as a result of the two world wars and the decline of the Empire, the values have changed.

Turning to our educational system, Mr. Menon emphasised that it was different in nature and in magnitude from other systems. The most crying problem is to remove illiteracy. In this context he compared the situation rampant in Russia before the revolution. There was a demand for compulsory primary education. But experts in Tsarist time regarded this as hopeless dream. Yet within 40 years after the Revolution, illiteracy was practically abolished in Russia.

There was much in common between the state of affairs in India and in Russia before the Revolution. In India, too, after independence much has been done to expand and improve education. Much however remains to be done. The problem of educated unemployment has so far remained intractable.

Mr. Menon stressed that education should be designed to develop not merely a child's intellect but all his faculties — physical, moral and aesthetic. Special attention should be paid to polytechnical education and the students should be trained to use their hands and minds. He also referred to the language problem of the country and compared it with the language problem in Soviet Union. He said that in USSR 3-language formula is already in force without anyone making a song and dance of it. Every student has to learn Russian, a local language and the third language may be English, French or any other European language or even Hindi or Urdu. After the completion of 10 years of schooling a young man has three alternatives open to him. He may join a professional or a vocational school to go in any of the numerous branches of industry or agriculture. Or he may join any of the 700 special Institutes of higher education. Or he may join one of the 40 universities in the USSR. Roughly 60% of the students go into a vocational or professional school; 35% into a special institute of higher education and less then 5% into a university. Only those who have distinguished aptitude for research are allowed to go into universities. Admission is planned on the basis of the actual requirements of the state so that the number of qualified men in any category will not exceed the number required. The result is that when a young man comes out of the school, the institute or the university, he will find a job awaiting him.

He conceded that this involves some restriction on the candidate's freedom to choose his career. But this is necessary not merely in the interests of society but in the individual's interest. Under this system there is no wastage; and none has to engage himself in the frustrating, demoralising and often fruitless game of job-hunting.

Mr. Menon broadly classified the system of education in two categories; one based on the primacy of the individual and the other on the primacy of society. He said that there should be no intrinsic contradiction between the two. Whatever dichotomy there may be between the two systems, the Soviet system of education has reconciled them. The individual is provided with education not only for his own enlightenment but in order that he may serve society. He wanted Indian students to plan their career accordingly.

UP. 310 — A NEW DISEASE RESISTANT

A high yielding, triple dwarf and lodging resistant variety with superior grain quality has been developed at the G.B. Pant University of Agriculture and Technology, Pantnagar. It was released for general cultivation recently. This variety has been under extensive trial in various parts of the country for four years. This year it was distributed to 3,000 farmers, to evaluate its performance in the farmers' field. This new variety ends the atmosphere of uncertainty that has been prevailing of late because of breakdown of disease resistance in Kalyansona and other wheat variety that had dominated the scene so far. The new variety is resistant to the yellow and black rusts and is also moderately resistant to brown rust. It matures 10-15 days earlier than Kalyansona. This attribute makes it ideal for multiple cropping programmes. UP 310 has performed well in Punjab, Haryana, Delhi and U.P. In Bihar, West Bengal and Madhya Pradesh, too, this variety is reported to be doing well.

DELHI PLANS FOR GOLDEN JUBILEE

The Golden Jubilee Celebrations Committee of Delhi University has recommended that a Cafetaria-cum-Bookshop complex be constructed as a 'gift to students' on the completion of 50 years of the University. A 'gift' of Rs. 5-lacs Stadium complex has already been announced. A special grant of Rs 10 lacs has been sanctioned by the University Grants Commission. It may be recalled that on the occasion of the silver jubilee of the university, Jubilee Hall was given as gift to the students. The Executive Council of the University has also decided that Rs 10 lacs be spent on building houses for teachers and non—teaching staff of the university.

The University would be holding a special convocation for conferring honorary degrees on distinguished educationists and persons of repute. The degree of Doctor of Literature (D.Litt) will be conferred on Prof. Harish Chandra, Dr. C.D. Deshmukh, Dr. B.N. Ganguli, Mahamahopadhayaya Gopi Nath Kaviraj, Shri Jainendra Kumar, Dr Frank Raymond Leavis, Professor Hajime Nakamura, Shri R. K. Narayan, Shrimati Amrita Pritam, Professor C. R. Rao, Shri Satyajit Ray, Professor Abdur Razzaq and Shrimati M.S. Subbulakshmi. The degree of Doctor of Science (D.Sc.) will be conferred on Dr Salim Moizuddin Abdul Ali, Dr S. Chandrasekhar, Professor Peter Leonidovich Kapitza, Dr Har Gobind Khoronna, Dr D.S. Kothari, Dr M.G.K. Menon, Professor T.R. Seshadri and Prof. E.C.G. Sudershan.

ICSSR DOCUMENTATION CENTRE

The first regional documentation centre of the Indian Council of Social Science Research was inaugurated recently by Prof. Nurul Hasan, Union Minister of Education. An initial grant of Rupees one lac has been provided by the ICSSR for documentation work in Social Science through the medium of Telugu and Urdu. Provision has also been made to microfilm and translate important documents. The Nizam College, a constituent college of Osmania University, would be starting a postgraduate course in Instrumentation from the next academic session. Incidentally, this will be the first course of its kind in the State of Andhra Pradesh. The candidates will be provided an intensive six week laboratory training in a closer field of industry.

Professor S. Bashiruddin of the Department of Journalism has been invited to attend the Publication Advisory Body of the Asian Mass Communication Research Committee meeting to be held in Singapore during May, 1973. He is the correspondent on Journalism education in India for the Asian Mass Communication Research and Information Centre, Singapore.

THE OPEN UNIVERSITY

The Open University came into being in 1969 after the Royal Charter was granted on May 30, 1969 and the teaching started in January 1971. Since then world-wide interest has been shown by educationists in the innovatory methods of the university and many overseas visitors have visited the campus situated in Milton Keynes—a new city being built on fifty miles north of London near Bletchley. The university has been planned for the people who wanted to study at the university level while remaining in full time employment and is open to anyone over 21 years of age irrespective of any formal academic qualification. Its 40,000 students include steel workers, teachers, clerks, housewives. electricians. Teaching is by means of correspondence, textbooks, radio and television programmes, residential summer schools. The 'home experiment kits' of the university have been very useful and popular.

The university is organising a course from 18th to 30th November this year to provide a comprehensive examination of the objectives, structure, methods and teaching material. This course will be the first opportunity for interested observers to spend some longer period at the university academic and administrative headquarters. Dr C.A. Russell of the Faculty of Arts of the University will act as the Director of Studies while senior members of university's academic and administrative staff would give lectures on the history, objectives and achievements of the university's teaching system and teaching materials, and their role in the educational technology. Its administrative and finance procedure, short and long term planning, regional organisation, admission system would be explained at length. The role of tutors and counsellors, students and their background and their study difficulties and participation in University affairs will also be discussed in some details. Endeavour will also be made to explain methods of the examinations and assessment, the use of computers, the postgraduate programme and post-experience courses.

The course will admit 50 members who would be senior academic or administrative staff from educational institutions or from Government departments. There will be a nominal fee of £130 for the course.

Applications for the course would be received in London by July 1, 1973.

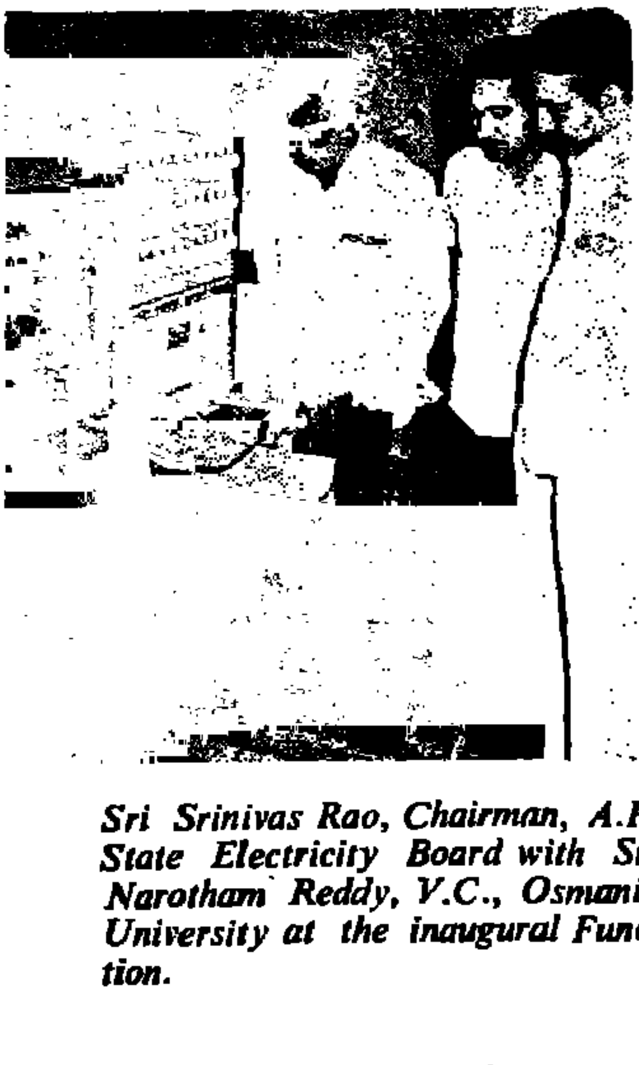
VACATION COURSE

The Gujarat university is organising a vacation course in English at different centres in few selected affiliated colleges. The course is designed to improve the proficiency in English and is primarily intended for students appearing at the pre-university examinations of the university.

The university has recently set up a committee of experts for preparing encyclopaedia in Science and Technology. A magnificent donation from Shri Hari Om Ashram has been received for this purpose.

COMPUTER INAUGURATED AT OSMANIA

The all solid-state analogue computer was inaugurated and installed at the Department of Electrical Engineering of Osmania University recently. Shri N. Narotham Reddy, the Vice-Chancellor of the university, on this occasion thanked the authorities of the Andhra Pradesh Electricity Board for providing this 2.7 lacs computer in the university. He announced that a digital computer would also be installed soon in the Department of Electronics and Communication Engineering. The two computers would be able to meet the growing needs of the university. The analogue computer is a powerful tool for solving complex nonlienar differential equation. This could also be used for aeronautical engineering, chemical engineering, civil engineering, electrical engineering, mathematical physics and nuclear engineering, etc. The Electronic Corporation of India had helped the university in training its staff to man these computers.



Sri Srinivas Rao, Chairman, A.P. State Electricity Board with Sri Narotham Reddy, V.C., Osmania University at the inaugural Function.

FIFTY EIGHTH ANNUAL COMMENCEMENT ORATION

The Fifty-Eighth annual Commencement Oration of Spicer Memorial College was given by Mr. R.P. Nath, Vice-Chancellor, Marathwada University this year. Mr. Nath in his address highlighted the problem of unemployment facing the country. He said that this complex problem was tied up with our economic policies, growing population, lack of technical know-how and a general failure of the educational system to provide the right sort of men and women for our developing economy. He said that we have got ourselves bogged down in a contradiction. On the one hand there is an alarming number of illiterates and on the other hand there is an ever increasing army of educated unemployed. The two should be so matched that the illiterates become literate and the educated unemployed get their jobs. There is a plenty of work that needs to be done in a variety of spheres: health, education, housing, agriculture etc. Our educational system should foster a keen desire in the young men and women to work in these spheres. The craze for white-collared jobs which is a legacy of British administration has rendered our youth unfit for any job which involves manual work. But in a developing country the youth has to work out its own salvation according to its genius.

SEMINAR ON HIMALAYAS

A seminr on regional development of the Himalayas was recently held at P.P.N. College Kanpur. Shri Bhakt Darshan, Vice-Chancellor of the University in his inaugural address stressed the importance of conducting special studies on himalayan regions. The Himalaya has great strategic importance and so its study had a special significance. The seminar was attended by teachers of Geography from various universities.

AUTONOMOUS STATUS LIKELY FOR MEERUT COLLEGE

The Meerut College was founded over a century ago. It has a long academic history and a tradition of its own. There are about 6000 students on its roll in 20 postgraduate departments with facilities for advance research. The college buildings and laboratories are spread in an area of 100 acres. In April 1972 the College Academic Council appointed a working group for the re-organisation of structure standard and courses, methods of instruction and examination. The proposal was considered by the Academic Council of the Meerut University in May 1972 and a study group was appointed to consider this issue. A formal application for the grant of anutonomous status has also been made in August 1972. The university since then appointed a committee to draft statutes and ordinances for this purpose and the matter has been considered in the Court of the University as well. Their recommendations have been forwarded to the Chancellor for his approval.

NEW VARIETY OF PADDY EVOLVED AT LUDHIANA

The Punjab Agricultural University has evolved a new variety of paddy which has been released for cultivation in Punjab during the next sowing season. The variety called M-95 is quick in maturing and is suitable for late sowing, as it ripens in 70 days after transplanting. Although the bulk of the rice crop in Punjab is transplanted in July, yet because of some limiting factors this work continues even up to the middle of August. The current popular varieties like IR-8 and Jaya if planted in second half of July give very low yield and can sometimes be a total failure due to early on-set of cold weather. But this new variety M-95 meets this need as it can tolerate low temperature and is remarkably constant in its yield when planted on different dates.

Electronic Classroom & Continuing Education

Dr. D. P. Pattanayak

Technology has revolutionised education as much as it has affected human life. The use of technology in education has helped man to delve deep into the recesses of human mind and broaden the base of knowledge. In its day-to-day application, technology, by simplifying procedures, solving problems rapidly and thereby increasing the efficiency of teaching and learning has resulted in the accumulation and dispersion of a quantity and quality of information and knowledge in the shortest possible time, which was hitherto impossible. This in turn has led to an unprecedented explosion of kowledge and accelerated the process of modernisation.

Because of the peculiar structure of education in the country, technology as an agent of innovation is resisted by the academics. Gadgets, when acquired, are viewed more as status symbols than as tools furthering knowledge. In most cases where gadgets are inducted into the system, they are tolerated rather than assimilated. They are tolerated partically because 'somebody else' whether it is the Government, a charitable institution or a foreign foundation pays for it and partically because it adds to the prestige of the institution. They are not assimilated mainly because they do not grow out of the genuine research need of the scholars concerned. The lack of awareness of the traditional academic leaders of the capacity of the gadgets to offer anything intrinsically good is also responsible to a great extent for the lack of assimilation of the results of technology in the process of education. In consequence many a potentiality is blasted and the resultant tragedy leads to alround retardation and frustration in the field of education.

When use of technology in the field of conventional education is so limited, it is no wonder that it has almost no application in the out of school continuing education. Unfortunately in our country the conventional medium of transmission of information, correspondence, is equated with technology as well as methodology. This acts as a mental barrier and an inhibiting factor for the introduction of technology in continuing education. Yet, if spoken language is to be taught through correspondence, if listening comprehension and reading speed of the learner is to be improved as part of a programme of continuing education, then there is no escape from technology being used for the programme. In the regular continuing education programmes there is a writer to reader communication and the contact between the teacher and the taught is impersonal. Under these circumstances, particularly when no courses are offered at the schools for increasing the speed of reading with comprehension, it becomes doubly important that the learner in this programme is helped in this area. The brief contact programme through crowded class-room teaching is no solution to this problem. In a class of 45 to 60 students, assuming that the class hour runs between 45 and 60 minutes, each student gets about one minute for active participation in the class programme. In a larger class, the situation is far more hopeless. With our emphasis on essay type answers and written dictation, very little time is available for active manipulation and even passive comprehension of the text. An audio-visual programme of a 30-45 minutes, be it a language laboratory, radio or television linked programme, gives not only 15-20 minutes to each student to actively participate in learning, but also allows scope for individual speed and variation. In short, technology can profitably be used for (a) remedying certain aspects of the problem arising out of impersonal communication between the teacher and the taught, (b) imparting certain urgently needed skills which cannot be given through postal correspondence and (c) providing more individual exposure time and thus maximising the opportunities available either in the contact programmes or through the brief mass-media programme.

Bernstein, the well-known social scientist from the UK, is responsible for the widely shared view that all educational failures are essentially linguistic failures. There are innumerable experimental designs supporting this position. The two following Indian experiments deserve special mention in this regard. (a) The CIIL, on the basis of its surveys and special studies made an assumption that there is a gap between the language attainment of the child at the end of the school stage and the language requirement at the beginning of the college stage particularly when he/she is called upon to study through the medium of language. In otherwords, the way language is taught in our schools, it does not equip the child to handle conceptual prose at the higher levels, thereby depriving him from the creative and critical handling of the subjects. After studying 900 students from all over Mysore State and administering tests and a Bridge Course specially prepared for the purpose, the hypothesis was found to be correct. The attention of the State education authorities has been drawn in this regard. (b) A standardised creativity test was administered by the Department of Physics of the Aligarh Muslim University to the high achiever group in the University. The result was so far below the expected norm that it baffled the scientists in the University. After the test was translated into Hindi and administered to the same group, it yielded the expected standard results.

A study was conducted by the Department of Psychology of the Delhi University, in which a brief skill oriented program was given to a group of students in the language laboratory. In comparison with a control group which studied the same material without the language laboratory, it was proved that the group using the language laboratory yielded better results. This experiment has since been repeated twice by the Department of Psychology and comparable results have been obtained in both the cases.

Of all the gadgets used as teaching aid, the language laboratory is the most versatile and pliable equipment capable of being put to multiple use. A language laboratory is not a substitute to a classroom teacher. It is not a self contained new method of teaching nor of teaching languages. It is an aid to teaching, a necessary but not a sufficient condition to the inculcation of the new approach towards language in particular and effective exploitation of new techniques in teaching in general. The laboratory material proceeds on the assumption that demonstration rather than explanation is a better road to success. Whether it is vocabulary, word-order, drill, exercise, dialogue or a narrative passage, it is the presentation of graded grammatical points and content teaching points through number of examples, which lead the student to discover for himself the generalised principle intended to be presented. Any visual material cued to audio-material also proceeds on the same assumption. Whether an Oscilloscope displaying voice intensity, a frequency meter displaying information relevant to intonation, or film projectors and video display systems showing the language use in meaningful contexts and transmitting cultural information by revealing facial expressions and information bearing body gestures, all of these reinforce audio-lingual learning through examples.

A language laboratory is an essential element in the audio-lingual approach to language teaching. It is also a necessary element in teaching listening comprehension and speed reading with comprehension. However film projectors, filmstrip projectors, epidiascopes and closed circuit or broadcast television are some of the more important audio-visual equipments which could enrich teaching when coupled with the facilities provided by a language laboratory. Hear-say-see has proved to be of great use in learning. It must however be noted that whether film or television is used, it is a creative process rather than a prescribed procedure. Cultural material is best presented through these mediums. Imparting information, providing stimulation by confronting the eye with illusion of motion and activity, the audio-visual material makes the process of learning more interesting and palatable. This brings a little warmth to the otherwise impersonal communication between the teacher and the taught inherent in the education through correspondence in particular and in the current educational milieu in general where there is a shortage of good teachers. As in the case of the laboratory, so also in educational television and film, constant evaluation of performance and subsequent evaluation of test results is a continuing feature. For both film and television pre-program audience preparation and post-show discussion of the material presented is a necessity. The newly methods of programming and newer modes of presentation of the material requires greater involvement on the part of the teacher, which is another reason why the Indian teacher accustomed to no work under the seniority system resists the introduction of technology.

The language laboratory with the supplementary visual equipment, is better described as an electronic classroom, whether it is stationery or mobile. It is a place where students experience language rather than make experiments with or on it. The language laboratory or the electronic class room by multiplying the actions of instructors (by providing facilities for instantaneous evaluation of his own work by the learner,) by providing increased interest and motivation to the student through built-in successes into the instructional program and ensuring progress at a rate equal to his ability helps quickening the educational process and deepening the equcational experience. Whether one teachers speech and drama, stenography, music or any other field using the language laboratory, integrated organisation of ideas, machines, men, material and procedures can yield all the benefits of teaching machines. Such complex synthesis of the media, which is a mental distribution system, with other components suggested above yields an instructional system which demands pre and post instructional preparation on a continuing basis. This requires structural as well as content analysis of the material to be used, programming the material in optionally relevent units and graded steps, and building in to the material continuous evoluation, confirmation, reinforcement and reward. Although the electronic class room relieves the teacher from the drudging of repeatation, it puts him in a new role and imposes greater responsibility where he can work towards developing the critical and creative faculty of the student while furthering the frontiers of technology. The instructional strategy of continuing education and the electronic classroom being the same, it is only natural that continuing education must take advantage of the latter.

Continued from page 8

specific university management problem areas. If the office is to have its maximum long-range impact, the director needs considerable autonomy. To ensure OIR independence from special interests and thus the objectivity of its recommendations, and to protect the office from Remains of sheahan's paper excessive ad hoc requests to assist with short-range operating problems, the office should report to the chief executive. The anticipation peculiar to the active mode of operation also requires a university-wide responsibility and thus detachment from a particular sector of the university. In short, the office of institutional research should report administratively to the president and be responsible professionally through him to the university community.

BOOK NOTES

Now onwards every issue of 'University News' will contain a list of some outstanding additions made to the I.U.B. Library during the preceding month under the caption 'BOOK NOTES'. Every entry in addition to the normal bibliographical details will also contain brief annotations. The books added to the I.U.B. Library during April 1973 are listed below:

1. **Bloom, Benjamin Samuel and others, Ed.** Handbook on formative and summative evaluation of student learning. New York, McGraw-Hill, 1971. 923p.

Bringing together the best of evaluation techniques in general as well as in each of the major subject disciplines and levels of education, the book is about the 'state of the art' of evaluating student learning.

2. **Califano, Joseph A.** Student revolution: A global confrontation. New York, W.W. Norton (c 1970) 96p.

This is a thoughtful exploration of the worldwide and profound nature of the crisis that besets the youth in ten countries of Europe, Africa, Asia and the Middle East.

3. **Coombs, Philip H. and Hallak, Jacques.** Managing educational costs. London, Oxford University Press (c 1972) xvi, 288p.

Based on twenty-seven case studies from all over the world conducted under the auspices of the International Institute for Educational Planning (**Unesco**). it is a practical guide to the implementation of educational cost analysis.

4. **Davies, Ivor K.** Management of learning. London, McGraw-Hill (c 1971) xi, 256p.

Provides useful and valid criteria against which teachers can choose alternative courses of action in the light of the assumptions they make about the nature of teaching, the objectives to be realized, the resources available, and the character of the students involved.

5. **Fashing, Joseph and Deutsch, Steven.** Academics in retreat: The politics of educational innovation. Albuquerque, University of New Mexico Press (c 1971) xxii, 264p.

In-depth comparative study of the campus reform movement that probes its problems and prospects. The study focuses on educational alternatives prompted by student dissidence and disaffection with the content and quality of higher education.

6. **Gaff, Jerry G. and others.** Cluster college. San Francisco, Jossey-Bass, 1970. xviii, 249p.

Describes the cluster college concept — a small college on a larger university campus and delves on its rediscovery as a collegiate model and its utility in restructuring undergraduate education.

7. **Hefferlin, JB Lon.** Dynamics of academic reform. San Francisco, Jossey-Bass, 1969. xxvi, 240p.

Identifies the major characteristics that distinguish the most educationally dynamic colleges and universities from the most static. Hefferlin lists the conditions that contribute to the process of continual academic reform and offers conclusions that will help institutions keep pace with changing needs.

8. **Inlow Gail M.** Education: Mirror and agent of change. New York, Holt, Rinehart and Winston, 1971. xiii, 542p.

The book is organised around the themes of a culture in ferment; formal education as both a public and private enterprise; formal education as a many-faceted, dynamic operational process; learners, both normal and exceptional, as deserving of programs tailored to their uniqueness; and teachers as pivotal in all phases of education at work.

9. **Pitcher, Robert W. and Blaushild, Babette.** Why college students fail. New York, Funk and Wagnalls (c 1970) vi, 271p.

Examines the characteristics of the unsuccessful students and describes the necessary attitudes and skills each student needs to succeed in college. It also discusses how a family often contributes to a student's downfall, and how typical educational systems fail to provide proper preparation and orientation.

10. **Zyskind, Harold and Sternfeld, Robert.** Voiceless university: An argument for intellectual autonomy. San Francisco, Jossy-Bass, 1971. xx, 193p.

Develops a theory of higher education based on the idea of the university as 'a centre for disciplined thought' —giving direction to the endless debate on how higher education should be structured.

The Changing Educational Pattern

G. P. Sinha

The knowledge explosion has imposed altogether new pressures on schools and colleges. It has now become increasingly evident that formal education plays an important part in social economic and technological development of a country. It is, therefore, necessary that utmost importance should be attached to improve our schooling system which includes pattern and quality of inputs, teachers, buildings, financial expenditure per student, curricula, textbooks, and other teaching materials.

For various reasons India, a developing country, is not in a position to make her system as highly retentive as that of U.S.A. and Japan. In those countries there would appear to be a deliberate policy of encouraging as many students as possible to continue through the end of secondary schooling. In European countries there has been a tendency of gradually selecting out a small elite which has been allowed to continue through the pre-university years. Theoretically, of course, each child is allowed to continue through but usually on condition that various academic as well as selective hurdles are overcomed. If the secondary and higher education have, to some extent, been broadened, the objection has frequently been raised that if more students are allowed through either in to the pre-university year or to the university, this will mean lowering of 'standards'. Unfortunately, when asked for operational definition of 'standards', those who use the term are either at a loss to supply one or suggest what 'standards' refer to them as minimum requirement for a 'Pass-mark' that has emerged over the years. But expansion of education is inevitable, and also desirable, and there should be no room to believe that 'mere means worse'.

On the recommendation of the Secondary Education Commission, a decision was taken to develop a national pattern of school classes converting eleven years of higher secondary education. This was to be followed by three-year degree course for the first degree. Three-year degree course was introduced everywhere except in the state of Uttar Pradesh and the University of Bombay, but the same success was not attained in converting high schools into higher secondary schools. In Bihar, not more than 25% of high schools were converted into higher secondary schools by 1971, the year in which higher secondary system was abolished. In spite of the offer of the Central assistance, only a few states implemented the system completely, others either implemented it or have gone back on their earlier decision. It is thus clear that the reorganisation of education as suggested by the Mudaliar Commission failed to bring a uniform pattern of school and college education in India, and even today there is almost as great a variety of pattern as there was when the scheme was launched.

In Bihar, many of these conversions were only nominal in the sense that no necessary facilities were provided. For reasons, mainly financial the universities continued retaining the end-year of the higher secondary classes with a new nomenclature of pre-university class. In the prevailing social conditions students preferred studying in pre-university class to higher secondary class; being in a college or university it provides higher social status than being in a school and thus, the parents also encouraged their wards in joining the pre-university class. In matters of admission to the degree and other courses, the pre-university students were placed in an advantageous position in comparison to the students who had done higher secondary. Moreover, the universities of Bihar did not follow the introduction of the three-year degree course in its spirit and failed to evolve an integrated syllabus for it till 1971, the year of its crucification.

At the time when the Indian Education Commission was examining the educational system of this country, the failure of higher secondary system had become apparent. There were suggestions from several quarters to reorganize the educational structure of this country. The Committee on Emotional Integration stated in the Report (1962) as follows:

> 'We consider that in the overall interest of our student population there should be a common pattern of education in the country which will minimise confusion and coordinate and maintain standards.'

There cannot be a national system of education without adopting a uniform educational pattern and a uniformity in a system is an essential element for raising its standard.

Without going into further details it is now important to consider the duration of school education and duration of education in the university for obtaining the first degree. Judged by the roles the graduates have to play in the modern world, 15 years of education is considered to be the minimum for entitling a student for the first degree (In U.K. it is16 years: England — 13 years in school and 3 years in college; Scotland — 12 years in school and 4 years in college). As far back as in 1919, the Calcutta University Commission proposed that the dividing line between the university and the secondary school should be drawn at the intermediate examination, which came after 12 years of education. Similarly the University Educa-

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tion Commission (1948) recommended that students should be admitted to the university after the completion of 12 years of study and that the first degree course should be of three-years duration. According to the Committee on Emotional Integration (1962) the eleven-year period of school education was inadequate. Preparation for entrance to the university and the lengthening of the course by one year was deemed necessary. Following these reports the Indian Education Commission (1964-66) recommended 12 years of school education and three years of university education for entitling a student to obtain the first degree. The ;ecommendation was accepted by the Government of India and was included in the National Policy on Education, adopted in 1968, and thus the Union Government is committed to its implementation.

The external high school examination (it has different names in different states) comes to after 10 to 12-years of schooling in different states. No reliable and scientific study has yet been reported comparng the standards of achievements of candidates appearing at those examinations in different states, but for all practical purposes they are considered equivalent. If the content of syllabus is regarded as a measure of standard, it has been found that there is no marked difference in content of courses to be studied by those who appear at these examinations whether after 10 years or after 11 years or after 12 years of schooling. Judged from what has been said about the students of those regions where final high school examination is held after 11 years or after 12 years of schooling, are placed in a disadvantageous position so far as employment opportunities are concerned. The second related question is: Why should a student waste one or two years of time if the same content can be mastered and understood within a shorter period (practising teachers can very well imagine what is being taught in Bihar in 11 years can be taught fruitfully within 10 years)? The author of a recent book 'School is Dead', published in U.K., says that everything a high school graduate is taught in twelve years of schooling can easily be learnt in two years. What is needed is fusing the content of 11 years duration into a systematic and graded, but integrated syllabus of 10 years' duration and utilising this one year in advanced study at the university.

Now we have to answer the question: What is the guarantee that all the states will follow a national pattern of education? The question is relevant in the context of annoying experiences which we have had in the past years regarding uniform pattern of education in this country. At one stage it was felt by the Union Government that as education is a state subject, therr is a difficulty on the side of implementation of any programme of education, however well intentioned it may be, and consequently there was a proposal to make education a concurrent subject. Even this proposal of the Union Government could not be acceptable to some of the states. The first hurdle towards implementation has been crossed as the Central Advisory Board on Education agreed to the implementation of the new pattern. It also seems desirable to make education a concurrent subject for better implementation of the scheme.

In Bihar, reorganization of education on national pattern (10+2+3) does not envisage either adding or subtracting year/years to or from prevalent system of education in which the first degree is awarded after 15 years of education. But there should be some ways and means of solving the administrative and political problems, although there is not much of academic problems arising out of the new organization. Nobody having a scientific outlook can claim his suggestion as a final word in solving the problem involved in the issue. What we are engaged in is the quest for the best solution and the best solution is one which is the most expedient. And expediency demands that the suggestion for the solution of the problem should be acceptable and convincing to administrators and politicians.

As already stated the Central Advisory Board on Education has taken a decision to adopt (10+2+3) pattern of education throughout the country and the Planning Commission in its approach paper on education for the Fifth Five Year Plan has made suggestions and provisions for adopting this uniform system of education (10+2+3). The first 12 years of schooling will be considered as school education. The Planning Commission has made a concession for the states to keep two years (after 10 years) of education in the school or in both schools and colleges, subject to the local needs.

From what has been said above the following points emerge for discussion:

(i) Keeping in view the period of free and compulsory primary education upto the age of 14 and a school entry age of 6 what should be the period of education in primary school? In Bihar primary education generally provides for education upto class VII, but children will complete the period of compulsory education at the end of class VIII.

(ii) In view of low number of students in some high schools, will it be possible for those schools to run with two classes or three classes only or alternatively should a high school consist of VII to X classes?

(iii) Should all the high schools have provision of teaching upto 12th class or only a few?

(iv) Should the universities run courses for 11th and 12th years of education or they should confine to teaching degree students only?

(v) The first public examination will be held after 10 years of schooling and the second, after the next two years. Should there be one examining body for both the public examinations?

(vi) Diversification and streaming will start after 10 years of schooling. What should be the qualification of the teachers for teaching in the 11th and 12th classes either in the schools or in the universities?

The current thinking is in favour of orienting college teachers also in teaching.

(vii) What provision should be made for vocationalization of education in order to reduce the pressure of students enrolment on the universities?

It is necessary here to give a note of warning regarding introduction of vocational courses. Harbinson and Myres, economists concerned with the growth of the gross national product in developing countries, say about vocational training:

> "The attempt to produce artisans in Uganda's vocational schools during the fifties involved the handling of large number of persons at excessively high annual per student cost, but produced no significant addition to the country's skilled manual labour supply. The total cumulative output of thirteen vocational schools over an eight-year period yielded only twentyfive qualified craftsmen... Our observations in other countries lead us to believe that the Uganda experience is the rule rather than exception."

The authors attribute the failure in Uganda to inadequate preparation in the language of instruction, to premature vocational choices, to impossibility of the demands for craftsmen of different types,... " and the most important, the needed craft skills could only be acquired by training on the job in the environment of practical working conditions, and the attempt to stimulate such conditions in the pre-employment schools failed due to inadequate equipment and unqualified staff."

(viii) How can the quality of essential inputs be increased?

(ix) How should we reduce the educational backwardness caused due to wastage of school and college teaching days?

(x) What steps should be taken to improve the reading habits of our students?

Inter-University Board of India, Rouse Avenue, New Delhi

Wishes to appoint a PROJECT OFFICER in the Professor scale of pay *plus* allowances which generally conform to Central Government rates. The applicant must be a specialist in the field of Examinations. He should be able to give adequate evidences of his capabilities, experience, publications and capacity to do independent work. Higher start admissible. Applications with complete particulars should reach the Secretary latest by June 1, 1973.

Candidates called for interview will be paid second class rail fare via the shortest route.

Some related issues arising out of these points may also be discussed.

It would be of interest to note that a high power committee under the Chairmanship of Shri Bhagwan Sahay, Governor of Jammu and Kashmir was appointed last year by the Govt. of J. and K. to reform education policy so as to create an educational structure to meet the growing and more challenging needs of the people in the years ahead. Among other members of the Committee were Mr. G. Parthasarthy, Vice-Chancellor of Jawahar Lal Nehru University, Dr. M.S. Swaminathan and Mr. J.P. Naik. The Committee has recommended that secondary stage should be extended to four years (class IX to XII). This has been done so that the high school could serve as a spring board for branching out to different vocations. The Committee has suggested three types of secondary schools — vocational schools with two-year courses to prepare students for different vocations, general schools providing education upto classes IX and X and, with the students having the option on completion to join class XI in a full fledged secondary school which will cover classes IX to XII and will mainly prepare students for the university. The Committee has attached higher significance to a transformation of the education system with a view to link it more closely with productivity, blend formal education with informal programmes, and provide educational facilities not only to the non-working population but also to the working population which is larger.

PERSONAL

Dr. C.M. Jacob, Dean of the Faculty of Agricultural Engineering, Punjab Agricultural University, has been appointed Vice-Chancellor of the Kerala Agricultural University for a period of 3 years.

Mr. Ram Sahay, Member of the Board of Revenue, has been appointed Vice-Chancellor of Allahabad University for a period of 3 years.

Maj. Gen. B.M. Bhattacharjea has been appointed Director-General of N.C.C.

Mrs. Margaret Thatcher, Britain's Secretary of State for Education and Science paid a 5-day official visit to India.

Prof. B. Misra, formerly Director Orissa State Bureau of Textbook Preparation and Production, Bhubaneswar has been appointed Registrar of the Sambalpur University.

Indian Institute of Technology, Bombay

Powai, Bombay 400076 **Advt No. 748**

ADMISSION TO POSTGRADUATE DEGREE/DIPLOMA COURSES IN ENGINEERING (1973-74 SESSION)

Applications are invited for admission to the following postgraduate courses leading to the DEGREE OF MASTER OF TECHNOLOGY (M. TECH.) in: (i) AERONAUTICAL ENGINEERING (ii) CHEMICAL ENGINEERING (iii) CIVIL ENGINEERING (iv) ELECTRICAL ENGINEERING INCLUDING ELECTRONICS (v) MECHANICAL ENGINEERING (vi) METALLURGICAL ENGINEERING and the following postgraduate diploma courses (DIIT): Chemical Engineering Dapartment (1) FURNACE TECHNOLOGY, Civil Engineering Department (1) DOCK AND HARBOUR ENGINEERING (2) APPLIED HYDROLOGY. Electrical Engineering Department (1) Computer Science.

The M.Tech. courses are of two academic years' duration. The DIIT courses are of one academic year's duration. Both the courses are scheduled to start on 1st August 1973. Scholarships of Rs. 250/- p.m. are awarded to unsponsored students admitted to these courses. Hostel accommodation is available to all students.

Candidates will be selected by a test and interview at the Institute at Bombay. The candidates are to meet their own expenses for interview.

Minimum Qualifications

M.TECH COURSES

A Bachelor's degree in the appropriate branch of engineering (Aeronautical, Chemical, Civil, Electrical, Electronics, Tele-communication, Mechanical or Metallurgical) with at least 55 per cent marks in the qualifying examination or an equivalent qualification obtained by virtue of an examination, as recognised by the All India Council of Technical Education.

Candidates with a Master's Degree in Physics with Wireless/Electronics/Radio physics, as special subject(s) will also be considered for admission to some of the courses in Electrical Engineering, Electronics, provided they have passed the qualifying examination with at least 55 per cent marks.

CANDIDATES BELONGING TO SCHEDULED CASTE/TRIBE WILL BE CONSIDERED FOR ADMISSION PROVIDED THEY HAVE OBTAINED AT LEAST 50 PER CENT MARKS AT THE FINAL EXAMINATION. SPECIAL CONSIDERATION WILL BE SHOWN TO THEM IN THE MATTER OF ADMISSIONS AND AWARD OF SCHOLARSHIPS AND FREESHIPS.

D.I.I.T. COURSES

Furnace Technology—At least a second class Bachelor's degree in Chemical, Mechanical or Metallurgical Engineering, a Silicate or Fuel Technology, or equivalent qualification by virtue of examination as approved by the All India Council of Technical Education.

Dock and Harbour Engg—At least a Second Class Bachelor's degree in Civil Engineering.

Applied Hydrology—At least Second Class Bachelor's degree in Engineering, or a good Master's degree in Science (Physics, Chemistry, Mathematics, Geology, Geophysics, Meteorology, Agriculture).

Computer Science—(a) At least Second Class B.E./B.Sc. Degree in Electrical Engineering Electronics Communications or Tele-communications from a recognised University or equivalent degree or

(b) M.Sc. in Physics (with Electronics) or

(c) As a special case, B.E. or M.Sc. Degree in other areas of specialization may be admitted, provided they have sufficient background in Electronics and Mathematics.

Candidates who have appeared at the corresponding qualifying examination and are awaiting results, are also eligible to apply.

Experience in a relevant field will be considered desirable qualification. Other things being equal, candidates with experience in the relevant field and those sponsored by Government, Quasi-Govt. Educational or Industrial Orgnizations will be given preference.

The following electives are offered for the M. Tech courses for the 1973-74 Session.

Aeronautical Engineering

(1) Aircraft Design and Production (2) Aircraft Propulsion (3) Control and guidance (Graduates in Civil Electrical and Mechanical Engg. are also eligible).

Chemical Engineering

(1) Automation in Chemical Industries (2) Electrochemical Technology (3) Inorganic Process Industries (4) Organic Process Industries (5) Technology of Cellulose (6) Technology of Fuels (7) Technology of Silicates (8) Unit Operations.

Civil Engineering

(1) Hydraulic Engineering (2) Soil Engineering (3) Structural Engineering.

Electrical Engineering

(1) Communication Engineering (2) Electron Devices Technology (3) Energetics (4) Instrumentation, Control and Computers.

Mechanical Engineering:

I—Design and Production Group

(1) Machine Tool Engineering (2) Machine Design (3) Metal Forming and Metal Casting.

II—Heat and Power Group

(4) I.C. Engineering (5) Refrigeration Engineering 6) Thermal Power Engineering (7) Fluid Power Engineering.

Graduates in Aeronautical Engg. are eligible for admission to electives at (1), (4) and (7).

Metallurgical Engineering

(1) Extractive Metallurgy (2) Ferrous Process Metallurgy (3) Physical Metallurgy.

Application forms can be had from the Deputy Registrar (Academic) by enclosing a self-addressed stamped (50 paise)envelope of size 23 x 18 cm" and superscribed "Admission—M. Tech./DIIT Course in

(————————————————)

(Mention here Branch of Engineering/ Course). Completed applications with Indian Postal Order for Rs. 5/- must reach the Deputy Registrar (Aademic) by *30th June* 1973.

Classified Advt.

UNIVERSITY OF JAMMU
JAMMU TAWI

Applications on prescribed forms are invited for the following posts to reach the undersigned on or before May 15, 1973:—

1. Professors in the scale of Rs 1100-1600
   One each in the subject of Physics (Theoretical), Geology and Sanskrit.
   (A person of exceptional merit may be considered for appointment as Senior Professor in Physics in the scale of Rs 1600-1800).
2. Readers in the Scale of Rs 700-1250, one each in Zoology and Punjabi.
3. Lecturers (Rs 400-950) in:—
   (a) Punjabi
   (b) Zoology (Specialization in Ichthyology)
   (c) Economics (specialization in Advanced Economic theory or international Economics or Comparative Economic Development)
   (d) Business Administration (experience of preparation of cases and teaching of Managerial Economics)

For full details and prescribed forms, please apply by sending a crossed postal order for Rs 1/- drawn in favour of the Registrar, University of Jammu, Jammu, cashable at Jammu post office.

K.K. Gupta,
Registrar

Sports Board Meets at Varanasi

Reported by Mr. G. S. Sivia

The 33rd Annual Meeting of the Inter-University Sports Board was held at the Banaras Hindu University, Varanasi on 20th and 21st April, 1973. Dr. K.L. Shrimali, Vice-Chancellor of the Banaras Hindu University and President of the Sports Board presided. The meeting was attended by 82 delegates. In his welcome address, Dr. K.L. Shrimali underlined the importance of sports in the educational set-up and emphasised the need to encourage university sports. He suggested that promotion of sports in the universities was important not only from the educational angles but also because achievement in this field at the international level, today, was associated with the national glories. Besides, sports was an effective instrument to inculcate discipline amongst the youth and to channelise their energies for meaningful purposes.

The Sports Board decided to introduce a new scheme of summer coaching programme. It is a modified programme of the NSO camp previously organised on zonal basis. It will be run on the pattern of the inter-university cricket zonal championship for the Vizzy Trophy. The zonal teams will be selected from the preceding inter-university tournaments and will be given three weeks coaching during summer vacations at comparatively cooler places. At the end of the training, they will go in for the inter-zonal competitions and the team emerging victorious will be known as the zonal winners of the inter-university championship in that particular game. To begin with, the programme will be organised in a few selected games like Hockey, wrestling etc.

Inter-University Meet will, henceforth, be organised on four zone basis. Only the athletes satisfying certain qualifying standards at the zonal level will be permitted to participate in the inter-zonals. The tournaments from the zonal semi-final stage in the following games also shall now be played on league basis.

1. Hockey (men)
2. Volley-ball (men)
3. Basket-ball (men)
4. Football.

For the first time, gymnastics for women has been introduced and 200m free style event has been included in the inter-university acquatic competition.

The Sports Board made the following allotments to the various universities for 1973-74.

SPORTS CALENDAR 1973-74

GAMES ON ALL-INDIA BASIS

NAME OF THE GAME	ORGANISING UNIVERSITY
1. Ball-badminton (men)	Kerala Agricultural University
2. Ball-badminton (women)	Kerala Agricultural University
3. Boxing	Punjabi
4. Chess	Osmania
5. Gymnastics (men & women) and malkhambh)	IIT, Delhi
6. Hockey (women)	Agra
7. Kabaddi (women)	Kanpur
8. Shooting (men & women)	Aligarh Muslim (tentatively)
9. Squash Rackets	Roorkee
10. Swimming, Driving and Water Polo (men & women)	Calcutta
11. Tennis (women)	Kurukshetra
12. Weight-lifting and best physique	Osmania
13. Wrestling	Mysore
14. Kho-Kho (men)	Poona
15. Kho-Kho (women)	Poona

GAMES ON TWO- ZONE BASIS

	NORTH ZONE	SOUTH ZONE	ALL-INDIA FINAL
1. Basketball (women)	G.N.U.	Vikram Uny.	Vikram Uny.
2. Kabaddi (men)	Calcutta	Punjab-Rao Krishi Vidyapeeth	Punjab Rao Krishi Vidyapeeth
3. Table-Tennis (M & W)	B.I.T., Pillani	A.P. Agril.	A.P. Agril.
4. Tennis (men)	Kurukshetra	Nagpur	Nagpur
5. Volley-ball (women)	IIT Kanpur	Sardar Patel	Sardar Patel

GAMES ON FOUR—ZONE BASIS

	NORTH	EAST	WEST	SOUTH	INTER-ZONALS
*1. Athletics (M & W)	Jiwaji	B.H.U.	Jiwaji	Bangalore	Jiwaji
2. Badminton (M & W)	Vacant	Bihar	Indore	Madras	Indore
3. Basketball (men)	H.A.U.	Burdwan	Marathwada	Annamalai	H.A.U.
4. Cricket	Allahabad	Patna	Baroda	Vacant	Patna
5. Football	Kashmir	Sambalpur	Jabalpur	S. Venkateswara	Kashmir
6. Hockey (men)	G.N.U.	Ravishankar	Shivaji	Madurai	Ravishankar
7. Volley-ball (men)	Lucknow	B.H.U.	Bhopal	Karnatak	Karnatak.

Note:— *Subject to non-availability of a venue in the north zone.

THESES OF THE MONTH

From this issue onward each issue of the 'UNIVERSITY NEWS' will contain a list of 'Doctoral Theses Accepted by the Indian Universities' during the *preceding month* under the caption 'THESES OF THE MONTH'. This, we believe, will be the only source disseminating research information in a most up-to-date manner and will be found useful by the readers. Each entry will list name of the scholar, the title of the theses, name of the degree *if other than Ph.D.* and name of the university.—Ed.

PHYSICAL SCIENCES

Mathematics

1. Girish Ranjan Prasad. New density function in the theory of internal ballistics of guns. University of Delhi.
2. Rama Rao, S. Some problems in the mathematical theory of elasticity and electro-elasticity. Osmania University.
3. Sharma, Krishna Chandra. Studies on magnus instability and some related problems in exterior ballistics. University of Poona.
4. Singal, Rajeshvar Pershad. A study of hypergeometric functions of two variables of superior order. Punjabi University.
5. Tikekar, Ramesh Shriram. Geometric aspects of relativistic fields of gravitation. University of Poona.

Physics

1. Jain, Ashok Kumar. Magneto-Microwave transmission in semiconductors. University of Delhi.
2. Veerabhadra Rao, K. Photoelastic and linear lectrooptic dispersion in some non-cubic crystals. Osmania University.
3. Sami, A. Surface structural study of crystals by optical techniques. Jabalpur University.
4. Shrivastava, Ramesh Kumar. luminescence studies of CaS: Eu phosphors. Saugar University.
5. Telang, Chandrakant Bhalchandra. Decay, thermo-luminescence and fluorescence spectra of CaS: (Mn & Ce) — phosphors. Saugar University.

Chemistry

1. Bennur, Rajani Shanker. Microbiological transformations of Longifolene. University of Poona.
2. Bhide, Shobhana Vishnu. Biochemical nature of Amylose and its complexes. University of Poona.
3. Damle, M.V. Studies in organic polarography. Jabalpur University.
4. Murty, S.N. Oxidation of organic compounds by quadrivalent cerium. Jabalpur University.
5. Saraswathi, T.V. Syntheses of some 1, 2, 4-triazines and related products. Osmania University.
6. Saxena, Rajendra Behari. Studies on proteins and amino acids. Saurashtra University.

Earth Sciences

Saklani, Prem Swarup. Geological studies of the area South of Mukhem, Garhwal Himalaya. University of Delhi.

BIOLOGICAL SCIENCES

Biochemistry

1. Amrit Pal Singh. Study of lipids of Toria (Brassica campestris var. Toria)and Taramira (Eruca-sativa). Punjab Agricultural University.
2. Vijay Kumar. Ureides metabolism in pulses. Punjab Agricultural University.

Botany

1. Bisen, Prakash Singh. Studies on the host parasite interactions in storage rot of apples. Jabalpur University.
2. Kulhara, D. Carbohydrate metabolism of some Aspergilli with special reference to citric acid production. Jabalpur University.

3. Pandit, B.R. Ecology of river Narmada upper catchment area phase-II; Net primary production relations of Teak (Tectona Grandis Linn. f) and Dhawra (Anogeissus latifolia wall). Saurashtra University.

Zoology

1. Chandervali Singh. Studies on gametogenesis, fertilization and chromosome number in certain species of aspidogastrea (Trematoda). Awadhesh Pratap Singh Vishwavidyalaya.

Agriculture

1. Jaspinder Singh. Relative competing ability of Chenopodium album L. with wheat, under varying levels of moisture, nitrogen and weed intensities. Punjab Agricultural University.
2. *Prem Singh. Nature and causes of dormancy in ber (Zizyphus mauritiana Lam.). Punjab Agricul*tural University.
3. Sinha, Binod Kumar. Mode and magnitude of salt accumulation near roots in relation to transpiration rates. Punjab Agricultural University.

SOCIAL SCIENCES

Sociology

Banerjee, Usha. Social service administration in an urban metropolis: A study of Delhi Municipal Corporation with special reference to health and family planning. University of Delhi.

Economics

1. Satyanarayan, B. *India's trade with the ECAFE countries since 1951.* Osmania University.
2. Tilak Raj. Indo-East African trade 1947-69. University of Delhi.

Public Administration

Grewal, Bhajan Singh. An analytical study of centre-state financial relations in India. Punjabi University.

Education

Ganju, Makhan Lal. Study of the preparation programme of graduate teachers in Madhya Pradesh with a view to find out changes necessary for the contemporary Madhya Pradesh. Jiwaji University.

Management

Gujarathi, Ramdas Jagannath. Industrial development of Nasik District. University of Poona.

HUMANITIES

Linguistics

Rangan, K. A contrastive analysis of the grammatical structures of Tamil and English. University of Delhi.

Literature

Hindi

1. Puri, Ramchander. Bharatiya ras chintan per vedant darshan ka prabhav. Gurukul Kangri Vishwavidyalaya.
2. Saini, Kishan Singh. Shursen jampad ka itihas. Gurukul Kangri Vishwavidyalaya.
3. Sharma, Yogender Nath. Swayambhu evam Tulsi ke nari patra: Tulnatmak anusheelan. Gurukul Kangri Vishwavidyalaya.
4. Vidyalankar, Surya Prakash. Saptak-Traya: Andhunikta evam prampara. Gurukul Kangri Vishwavidyalaya.

(*Advt.*)

NEW TEXT-BOOKS IN ENGLISH FROM THE U.S.S.R. AVAILABLE IN INDIA

1. COMBINATORIAL MATHEMATICS, *N. Vilenkin, pp. 208, Rs. 7.40 (Mir Publishers, Moscow)*

Combinatorial mathematics (combinatorics) is a tool that is needed in many fields. Combinatorial problems are constantly confronting engineers, physicists, chemists, linguists and many other scientists. Combinatorial reasoning lies at the heart of many problems relating to the theory of probability and its applications.

This book gives a popular exposition of combinatorial mathematics together with some of the methods used in solving combinatorial problems. Such important topics as recurrence relations and generating functions are presented in a variety of exciting problems. The ground covered here goes a little beyond the limits of elementary mathematics, but a good secondary-school student should be able to grasp most of it.

This book serves the interests of senior students of the secondary school and first-year of universities and teaching colleges majoring in mathematics. It will definitely be of interest to anyone who deals in his practical work with problems of combinatorial mathematics.

Professor Naum Vilenkin (1920) has written over 100 research papers in the fields of topological algebra, the theory of functions of a real variable and the theory of group representations. He is also the author of over 50 books and articles on popular science and education.

His books Stories about Sets and The Method of Successive Approximation have enjoyed considerable popularily and have been translated into several languages.

2. FUNDAMENTALS OF VIBRATION ENGINEERING, *I. Bykhovsky, pp. 360, Rs. 7.90 (Mir Publishers, Moscow)*

This is a book for engineers and scientific workers who are concerned with vibration engineering and technological applications of vibrations, and for all who have to study, teach, or solve problems in the dynamics of machines, instruments, and structures. Though many of the problems treated are complicated, they have been presented in a form that makes them comprehensible to a wide readership.

A brief exposition of the information needed on the oscillatory motion in linear system is followed by a description of the methods of investigating nonlinear systems and by a treatment of linear and nonlinear problems in the dynamics of un-balanced-mass (centrifugal) vibration generators, shock-and-drives and vibrational processes, energy relations in vibrations, and the theory of dynamic vibrations-control.

3. LABORATORY PRACTICE FOR BEGINNERS *BY P.I. Voskresensky, pp. 200*

This is a manual for the training of laboratory assistants for chemical laboratories in industry and in research and teaching institutions. It will also be found useful as class reading for fifth and sixth-form students specialising in chemistry. The book describes the reagents, laboratory equipment and vessels and the various operations carried out in laboratory work. Much attention is paid to the inculcation of good laboratory habits and proper performance of operations and procedures, and to questions of safety and prevention of accidents in chemical laboratories. The material is well illustrated with drawings, diagrams and tables. Review questions and exercises are appended to each chapter.

The book covers the following subjects: Laboratory vessels and Their Washing and Drying; Heating and Calcinating Reagents and Materials; Balances and Weighing; Solutions, Dissolving and Filtering; Distillation and Sublimation; Extraction and Separation; Evaporation and Desiccation.

The book has been translated from the second Russian edition and has been published in December, 1972.

Importers are requested to place their orders with V/O Mezhdunarodnaya Kniga, Moscow.

Individual buyers are requested to place their orders with the dealers of Soviet publications in India.

4. **SURVEYING,** *P.I. Shilov, pp. 460, Rs. 10.00 (Higher School Publishing House, Moscow)*

This textbook has been divided into 37 chapters under the following six sections:

General; Geodetic operations and measurements on the ground; Transit survey; Direct levelling; Topographical Surveys; and special chapters.

5. **LABOUR LEGISLATION IN THE USSR,** *pp. 110, Re. 0.40 (APN Publishing House, Moscow)*

This contains the complete text of the Fundamental Labour Legislation currently in force in the Soviet Union and its constituent Republics with a commentary by Professor G.K. Moskalenko.

6. **DICTIONARY-HANDBOOK OF RUSSIAN LANGUAGE,** *pp. 154, Rs. 1.50.*

This is the third issue of the dictionary-handbook of Russian language and is devoted to the adverb. The words in it are considered from the point of view of their similarity and difference in meaning and usage. The description of the meaning of the words is accompanied by a number of examples. The aim of the handbook is to help the students learning Russian to correctly use the words which are close in meaning. The book is intended for students and post-graduate scholars studying Russian in the universities of the USSR and abroad as well as for teachers teaching Russian to foreigners.

MAIN DISTRIBUTORS

People's Publishing House (P) Ltd.,
Rani Jhansi Road,
New Delhi-5.

PPH Book Stall,
190-B, Khetwadi Main Road,
Bombay-1.

People's Book House,
Pramshah Manzil, Relief Road,
Ahmedabad.

Manisha Granthalaya (P) Ltd.,
4/3 -B, Bankim Chatterjee Street,
Calcutta.

National Book Agency (P) Ltd.,
12, Bankim Chatterjee Street,
Calcutta.

NCBH (P) Ltd.,
6/30, Mount Road,
Madras, Madurai, Coimbatore,
Tiruchirappally, Thanjaur.

Visalandhra Publishing House,
Eluru Road, Vijayawada.

Visalandhra Book House,
Sultan Bazar,
Hyderabad.

People's Book House,
Opp. Patna College, Patna,

People's Book House,
Hazaribagh Road, Ranchi.

Navakarnataka Publications,
Bangalore-9

Nabajuga Granthalaya,
Bajrakabati Road, Cuttack

Himachal, Book Centre,
4, The Mall, Simla.

Punjab Book Centre,
1940, Sector 22 B.,
Chandigarh.

Vijay Stores,
Relief Road, Ahmedabad.

Vijay Stores,
Commissariat Bldg., 1st Floor,
231, D.N. Road, Bombay-1.

Kitab Ghar,
Chaura Rasta, Jaipur.

Prabhat Book House,
Trivandrum, Ernakulam,
Alleppey, Calicut, Cannanore,
Udyogamandalam, Quilon.

New Age Book Centre,
Near Chowk State Bank of India,
Cheel Mandi,
Amritsar.

Punjab Book Centre,
Post Office Road,
Jullundur.

Progressive Book House,
Shillong Road, Panbazar,
Gauhati.

Progressive Book Depot,
Motia Park, Sultania Road,
Bhopal.

Chetna Book Centre,
1, New Market, Hazaratganj,
Lucknow.

Classified Advertisements

UNIVERSITY OF UDAIPUR, UDAIPUR

Advt. No. 3/73 April 24, 1973.

Applications are invited for the following posts in the University. Qualifications can be relaxed and higher starting salary can be allowed to candidates with outstanding experience and achievement. Benefits of Provident Fund, Leave, etc. according to University Rules. *Application form can be obtained* from the undersigned on payment of Rs. 4/- (Four) only through Crossed Postal Order drawn in the name of the Comptroller, University of Udaipur, Udaipur. A self addressed envelope (23 cms.x10 cms) duly stamped paise 35 should invariably be sent alongwith the postal order. Applications on prescribed form must reach the University by the *24th May, 1973.*

I. Professor in:

(i) Extension Education at the College of Agriculture—One (Permanent).

(ii) Hindi at the School of Basic Sciences & Humanities — One (Permanent).

Grade: Rs 1100-50-1300-60-1600 plus usual allowances.

Qualifications: At least a good second class Bachelor's degree followed by a good second class Master's degree in the subject from a recognised institution. A research degree of doctorate standard with published research work of a high standard in the subject. At least 10 years experience of teaching degree and post-graduate classes and/or research as evidenced by published work of merit in the subject.

II. Reader in:

School of Basic Sciences & Humanities

(a) Political Science—One (Parmanent).

College of Agriculture

(b) Dairy Science — One (Temporary, likely to be permanent).

(c) Extension Education—One (Permanent).

College of Home Science

(d) Child Development—One (Permanent).

(e) Home Science Education—One (Permanent).

Grade : Rs 700-50-1250 plus usual allowances.

Qualifications for the post at (a), (b) & (c):

At least a good second class Bachelor's degree followed by a good second class Master's degree in the subject from a recognised institution. Either a research degree of doctorate standard or published work of an equivalent standard. Atleast five years experience of degree and postgraduate teaching and/or research in the subject as evidenced by published work of merit.

Qualifications for the post at (d)

At least a good second class Bachelor's degree in Home Science followed by a good second class Master's degree *in* Child Development from a recognised Institution. Ph.D. in Child Psychology or Child Development with atleast five years experience of degree and Postgraduate teaching and/or reseach in the subject.

Qualification for the post at (e)

At least a good second class Bachelor's degree in Home Science followed by a good second class Master's degree in *Home Science Education/Home Science* from a recognised institution. Ph.D. in Home Science Education with atleast five years experience of degree and post-graduate teaching and/or research in the subject.

Desirable qualifications for the posts at

(a) Specialization in Indian Government and Politics/International Politics.

(b) Specialization in Agricultural Extension.

(d) & (e): Knowledge of Hindi.

III—Lecturer in

School of Basic Sciences & Humanities

(i) History—Two (Permanent)

(ii) Psychology—One (Temporary, likely to be permanent).

(iii) Philosophy—One (Permanent).

College of Agriculture

(iv) Dairy Science — One (Permanent).

(v) Plant Pathology—One (Temporary).

(vi) Extension Education—One (Temporary).

(vii) Agril. Economics — One (Temporary likely to be permanent).

(viii) Veterinary Science — One (Temporary).

College of Veterinary & Animal Science

(ix) Bacteriology — One (Temporary).

(x) Physiology — One (Temporary).

(xi) Swine Husbandry — One (Permanent).

College of Home Science

(xii) Child Development — One (Permanent)

(xiii) Clothing & Textiles-two (Permanent).

(xiv) Foods & Nutrition — Two (Permanent).

(xv) Home Science Education — One (Permanent).

Grade: Rs. *400-40-800-50-950* plus usual allowances.

Qualifications for the posts from (i) to *(vii)*

At least a good second class Bachelor's degree followed by a first class Master's degree in the subjects, or a good second class Master's degree with at least three years teachning and/or research experience, or Ph.D. in the subject.

Qualifications for the posts from (viii) to *(xi)*

A degree or diploma in Veterinary Science with good academic record. Advanced post graduate *training in* the subject at a recognised place of higher learning of at least one year duration. Teaching and/or research experience of three years.

Qualifications for the posts from (xii) to (xv)

At least a good second class Bachelor's degree in Home Science followed by a good second class Master's degree in the subject from a recognised institution with two years of teaching experience.

Desirable qualifications for the posts at:

(i) Specialisation in Medieval and/or Modern Indian History.

(ii) Specialisation in Experimental or social psychology. Research experience in applied social psychology.

(iii) Specialisation in any branch of Dairy Science (Dairy Technology, Dairy Chemistry or Dairy Bacteriology).

(iv) Ability to conduct and guide research in Agricultural Extension with modern methods and techniques of research as evidenced by published work. Aptitude for carrying out extension activities in the villages.
From (xii) to (xv):—Knowledge of *Hindi*

IV. Agricultural Experiment Station

(a) Agricultural Engineer (Reader) under ICAR Coordinated Soil Salinity, Irrigation, Drainage, Soil Sciences and Water Management Research Scheme—One (Temporary).

(b) Physiologist/Agronomist (Reader) *under* ICAR All India Coordinated Research Project for the Improvement of Sorghum — One (Temporary).

(c) Research Engineer (Reader) under *Fourth* Plan Scheme *for* 'Studies on Harvest and Post-harvest Technology—One (Temporary).

Grade: Rs. 700-50-1250 plus usual allowances.

Qualifications for the post at (a)

At least a good second class Bachelor's degree in the subject followed by a Master's degree in the subject. At least five years professional experience including teaching and/or research in the subject.

Desirable: Experience of guiding and conducting research in Irrigation and Drainage as evidenced by publications.

Qualifications for the post at (b)

At least second class Bachelor's degree in Agriculture or Science followed by second class Master's degree in Botany, Agricultural Botany, Plant Physiology, Agronomy or an equivalent post-graduate qualifications. At least five year's experience of research in crop physiology *as evidenced by published work* including teaching experience. Either a research degree of Doctorate standard or published work of an equivalent standard in the subject.

Desirable: Knowledge of modern language and modern methods of field *experimentation. Good knowledge of* Agricultural Chemistry/Bio-Chemistry in relation to its application to Plant Physiological research.

Qualifications for the post at (c)

At least a good second class Bachelor's degree in Agricultural Engineering followed by a Master's degree in the subject. At least five years professional experience including teaching and/or research in the subject.

(d) Veterinary Officer (Lecturer) under All India Coordinated Research Project "To determine the Economics of Milk Production under intensive dairy farming conditions in relation to high yielding varieties of cereals and cash crops". Headquarter-Vallabhnagar (Temporary).

(e) Assistant Geneticist (Lecturer) *under ICAR Scheme on "Collection* Evaluation and maintenance of germplasm of moth, (Phaseolus aconitifolius) and Cowpea (Vigna Sinenses) — One (Temporary).

(f) *Junior Engineer* (Lecturer) under All India Coordinated Research Project *for Dryland Agriculture — One (Temporary).*

(g) Horticulturist (Lecturer) at Regional Station of Agricultural Research, Banswara — One (Temporary).

(h) Assistant Statistician (Lecturer) under All India Coordinated Research Project on Oil Seed (Sesamum) — One (Temporary).

Grade: Rs. 400-40-800-50-950 plus usual allowances.

Qualifications for the post at (d)

At least a good second class Bachelor's degree followed by a good second class Master's degree in Veterinary Science and/or any related discipline or an equivalent post-graduate qualifications. At least three years' experience in research on health control in a large dairy herd, as evidenced by published work.

Desirable: Doctorate in Dairy Husbandry or Veterinary Science.

Qualifications for the post at (e)

At least a good second class Bachelor's degree in Science or Agriculture followed by a good second class Master's degree in Botany/Agricultural Botany or Plant Breeding and Genetics from a *recognised institution. At least* three years experience of research in the subject as evidenced by the published work including teaching experience.

Desirable: Ph.D. in the subject. Knowledge of Foreign language. Knowledge of modern methods of field experimentation.

Qualifications for the post at (f)

At least a good second class Bachelor's degree in Agricultural Engineering/ Civil Engineering followed by a good second class Master's degree in Agricultural Engineering or Civil Engineering. At least three years experience of research in Agricultural Engineering or Civil Engineering relating to engineering aspects of Dryland Agriculture as evidenced by published work including teaching experience.

Desirable: Knowledge of modern methods of investigation in engineering aspects of Dryland Agriculture and familiarity with farm Machinery and tillage equipment.

Qualifications for the post at (g)

At least a good second class Bachelor's degree in Agriculture followed by a good second class Master's degree in Horticulture from a recognised institution. At least three years experience of degree and post-graduate teaching and/or research in the subject as evi*denced by the published work.*

Desirable: Ph.D. in the subject.

Qualifications for the post at (h)

At least good second class Bachelor's degree followed by a good second class Master's degree in Statistics/Agricultural Statistics. Three years research and/or teaching experience at a post-graduate level as applied to agriculture as evidenced by the published work.

Desirable: PhD in Statistics.

V. Directorate of Extension Education

(i) Assistant Editor — One (Permanent).

(ii) Subject Matter Specialist (Soils) under ICAR Scheme of National Demonstration of Major Crops — One (Temporary).

(iii) Lecturer in Animal Husbandry (Extension Specialist) — One (Temporary).

Grade: Rs. 400-40-800-50-950 plus usual allowances.

Qualifications for the post at (i)

B.Sc. Ag. followed by M.Sc. Ag. in Extension Education with good second class. Experience of teachning/research/ extension for three years preferably. Experience in publication of various Agricultural Bulletins and issue pamphlets in Hindi will be essential.

Desirable: Able to handle farmers correspondence service and advise them. Ability to converse freely in Hindi and Local language.

Qualifications for the post at (ii)

Master's degree or equivalent in the subject, three years exprience of working with farmers and demonstrations selected to the subject.

Desirable: Ability to free converse in Hindi and local dialect. Aptitude for working with village people.

Conditions: Candidates selected are liable to be posted anywhere in Rajasthan.

Qualifications for the post at (iii)

At least a good second class Bachelor's degree in Agriculture followed by a first class Master s degree in Animal Husbandry/Poultry Science, or a good second class Master's degree with at least three years teaching/research/extension experience in the subject, or *Ph.D. in the subject.*

Desirable: Knowledge of modern methods in Poultry Extension work. Practical experience in cattle and poultry management. Knowledge in local language and Hindi.

VI. **Superintendent Physical Education** at *the College of Technology and Agri*cultural Engineering — One (Permanent)

Grade: Rs. 400-40-800-50-950 plus usual allowances.

Qualifications: A post graduate Diploma or certificate or a degree in Physical Education.

Desirable : A good working knowlledge of Hindi written in Deonagri Script and one of the Rajasthani Dialects. Specialisation, if any, in curricular activities.

VII. **Assistant Project Officer** under Dairy Extension Project, Pilot Milk Supply Scheme — Two (Temporary).

Grade: Rs. 375-25-550-30-850 plus usual allowances.

Qualifications: A second class or better B.Sc. Ag., B.Sc. (Dairying), I.D.D., N.D.D. or an equivalent degree or diploma of an Indian or Foreign University, having experience of procurement and transport of Milk, testing for chemical as well as bacteriological quality, Accounting, Organisation of cooperative societies and supervision of staff. Preference will be given to those who are experienced in all phases of Dairy operation, management and operation.

VIII. **Assistant Comptroller** at the University Administrative Office — One (Permanent).

Grade: 375-25-550-30-850 plus usual allowances.

Qualifications: M.Com. with 3 years experience of matters relating to finance and accounts of a University, a College or an Institute of higher learning or research or of a Government Department. A Chartered Accountant would be preferred and in his case the condition of experience may be waived.

IX. **Instructor** at the College of Veterinary & Animal Science, Bikaner — One (Temporary).

Grade: Rs. 225-20-285-25-435-EB-25 560-30-800 plus usual allowances.

Qualifications: *A degree or diploma* in Veterinary Science with good academic career with aptitude for teaching and research work. Post-graduate training will be considered as additional qualifications.

NOTES:

1. Number of post may be increased or decreased.

2. Those candidates who had already applied for the posts in response to the following earlier advertisements need not apply again and their cases will be considered alongwith fresh applicants. If there is any change in their qualifications/experience etc, the same may be intimated on plain paper within due date so that their candidatures may be considered accordingly:

Advt. No. 1/71, dated 18.3.71;
Advt. No. 6/71, dated 16.3.71;
Advt. No. 9/71, dated 18.8.71;
Advt. No. 10/71, dated 20-9-71;
Advt. No. 11/71, dated 17.12.71;
Advt. No. 2/72, dated 15. 3.72;
Advt. No. 3/72, dated 19.5.72;
Advt. No. 4/72, dated 14.7.72.

Registrar.

SAURASHTRA UNIVERSITY
RAJKOT

Applications in the prescribed form are invited for the post of PRINCIPAL (For University Conducted Sir P.P. Institute of Science, Bhavnagar) in the *scale of Rs. 800-50-1250 or Rs. 700-40-1100* (as per rules in force).

The post is permanent and carries benefit of Contributory Provident Fund. Dearness allowance will be paid as per rules. Free housing accommodation will be provided. Higher initial pay in the scale may be considered in case of exceptionally qualified and experienced persons. Qualifications and experience relaxable in special cases. Candidate in employment must submit their applications through their present employers. Candidates if not knowing Gujarati will be required to pick-up Gujarati within a reasonable period. Age ordinarily not exceeding 55 years.

The candidate must have the minimum qualifications and experience necessary *for recogniton* as a Post-Graduate teacher in a Science subject taught under the Science Faculty. Administrative experience as the Head of the Department in any college or a Ph.D. Degree in a Science subject will be considered as a additional qualification.

Application forms and detail of other qualifications and experience required will be available from the Registrar, Saurashtra University, Rajkot on sending a self addressed envelope of the size 23 x 11 cms with postage stamps worth 65 paise.

Application in six copies accompanied by Indian Postal Order for Rs. 5/- crossed in favour of Registrar, Saurashtra University, Rajkot should reach this office on or before 15th May, 1973.

V. M. DESAI,
Registrar.

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
BARODA
Notification No. 1

Applications in the prescribed form are invited for the following posts in the University Service.

FACULTY OF TECHNOLOGY AND ENGINEERING

1. *Professor in* Electrical Engineering.
2. Professor in Chemical Engineering.
3. Reader in Textile Chemistry.

Grade :
Professor : Rs. 1100-50-1300-60-1600
Reader : Rs. 700-50-1250

Prescribed application forms and details of qualifications and experience *required for the posts will be available* from the undersigned on payment of Crossed Postal Order of Rs. 1/- only.

The application forms along with the Crossed Postal Order of Rs. 7.50 for the above posts should reach the Registrar, on or before 21st May, 1973.

No correspondence will be entertained for incomplete and late applications.

K. A. AMIN,
University Registrar.

UNIVERSITY OF JAMMU
JAMMU TAWI
NOTICE

Applications on prescribed forms are invited for the following posts to reach the undersigned on or before May 15, 1973 :—

1. Professors in the scale of Rs. 1100-1600. One each in the subject of Physics (Theoretical), Geology and Sanskrit. (A person of exceptional merit may be considered for appointment as Senior Professor in Physics in the scale of Rs. 1600-1800).

2. Readers in the Scale of Rs. 700-1250, one each in Zoology and Punjabi.

3. Lecturers (Rs. 400-950) in :—
   - (*a*) Punjabi.
   - (*b*) Zoology (Specialization in Ichthyology).
   - (*c*) Economics (specialization in Advanced Economic Theory or International Economics or Comparative Economic Development);
   - (*d*) Business Administration (experience of preparation of cases and teaching of Managerial Economics).

For full details and prescribed forms, please apply by sending a crossed postal order for Re. 1/- drawn in favour of the Registrar, University of Jammu, Jammu, cashable at Jammu post office.

K. K. GUPTA.
Registrar

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY
POWAI, BOMBAY
RESEARCH SCHOLARSHIP/ FELLOWSHIPS IN ENGG./TECH.
1973-74 SESSION
Advertisement No. 746

Research Scholarships in Engineering/Technology of the value of Rs. 250/- p.m., Research Fellowships of the value of Rs. 400/- p.m. and post doctoral Fellowships of the value of Rs. 500/- p.m. are available in the following Departments of the Institute. Details of the research facilities and programmes of the various Departments will be available from Deputy Registrar (Academic).

Application forms may be obtained from the Deputy Registrar (Academic) on request accompanied by self-addressed stamped (50 paise) envelope of the size 28x13 m. superscribed "APPLICATION FOR RESEARCH SCHOLARSHIP/ FELLOWSHIP IN.........................

(Branch of Engineering)

Completed application forms accompanied by crossed postal order for Rs. 5/- payable to the Indian Institute of Technology, Bombay, must reach him at the *Institute by 20th June, 1973.*

In the case of candidates belonging to Scheduled Castes/Scheduled Tribes, special consideration will be shown in the matter of admission.

Candidates called for interview will be paid a single III class railway fare by the shortest route from the place of residence to the Institute and back.

The areas of research in which facilities are available and the minimum qualifications required are given below:

1. Aeronautical Engineering :

(1) *Aerodynamics*
- (*a*) Boundary Layers on Curved Surfaces.
- (*b*) Separated Flows.
- (*c*) Jet Interaction with Bodies.

(2) *Propulsion*
- (*a*) Aerothermodynamics.
- (*b*) Performance of Turbomachines.
- (*c*) Engine Cooling and Heat-transfer Studies.
- (*d*) Combustion—Flame—Stabilization and Fuel Additives.
- (*e*) Vibrations of High Speed Rotors.

(3) **Aircraft Structures**
- (*a*) Finite Element Methods.
- (*b*) Composites.
- (*c*) Structural Dynamics.

(4) *Aircraft Systems*—

2. **Chemical Engineering** : (1) Automation in Chemical Industries (2) Inorganic Process Industries, (3) Organic Process Industries, (4) Technology of Fuels, (5) Technology of Silicates, (6) Unit Operations, (7) Optimization and *Simulation.*

3. **Civil Engineering** : (a) *Hydraulic Engg.* : 1. Theoretical Fluid Mechanics, 2. Ground Water Flow, 3. Free Surface *Flow.*

(b) *Soil Engg.* : 1. Basic Soil Mechanics, 2. Soil Stabilization, 3. Foundation Interaction Problems and Earth Dam Problems, 4. Dynamics of Soil Media, 5. Mechanics of Swelling Soil Media, 6. Rock Mechanics.

(c) *Structural Engineering* : 1. Materials of construction, 2. Static and Dynamic problems in framed and grid structures (buildings, bridges etc.) and thin walled structures (plates and shells used in pressure vessels and other complex structures), 3. Systems *analysis* and probabilistic design, 4. Optimization, 5. Numerical methods and computer programming, 6. Biomechanics.

4. ***Electrical Engineering (including* Electronics)** : 1. Rotating Machines, 2. Power Systems protection. 3. Control Systems, 4. Instrumentation (integrated circuits), 5. Solid State Microwave Devices and Integrated circuits, 6. Microwave Engineering, 7. Communication Theory and Systems, 8. Thin Film Technology, 9, Computer Systems.

5. **Mechanical Engineering** : 1. Machine Tool and Metal Cutting, 2. I.C. Engineering 3. Fluid Mechanics and Fluid Machinery, 4. Thermodynamics and Heat Transfer, 5. Refrigeration and Air Conditioning, 6. Metal Casting and Metal Forming.

6. **Metallurgical Engineering** : 1. Phase Transformations, 2. Fracture Mechanics, 3. Diffusion and Sintering, 4. Thermodynamics of Metallurgical processes, 5. Extraction of ferrous and nonferrous *metals, 6. Raw materials preparation.*

Minimum Qualifications :

(i) A good Bachelor s degree in appropriate branch of Engineering for Research Scholarship of Rs. 250/- p.m. for research scholarships in Department of Chemical, Electrical or Metallurgical Engineering, candidates with a good Master's degree in Mathematics, Physics, Chemistry will also be eligible. Candidates with a Master's degree in Chemical *Technology are also eligible for research* scholarships in some fields in Chemical Engineering.

All Research Scholars holding Bachelor's degree *in Engineering* and starting with Rs. 250/- p.m. will be eligible for consideration for Research scholarship on Rs. 400/- p.m. after two years Study/Research.

(ii) A good Master s degree in appropriate branch of Engineering/Technology for Research Fellowship of Rs. 400/- p.m.

(iii) A Ph.D. degree in appropriate branch of Engineering/Technology for Post-doctoral Fellowship of Rs. 500/- p.m.

Candidates whohave appeared t a qualifying examination and are awaiting results are also eligible to apply.

Postal requests for application forms, received without a self-addressed, adequately stamped and duly superscribed envelope of the appropriate size, or received after 13th June 1973, will not be entertained.

INDIAN INSTITUTE OF
TECHNOLOGY, BOMBAY
POWAI, BOMBAY 400076
Advertisement No. 744

Admission to M.Sc. courses *in Science* subjects 1973-74 Session.

Applications are invited for admission to M.Sc. courses in :

(1) Applied Geology
Duration : 3 years

(2) Chemistry
Duration : 2 years

(3) Mathematics
Duration : 2 years

(4) Physics
Duration : 2 years

The courses are scheduled to start on 1st August, 1973. Students are required to reside in the Institute Hostels.

Candidates will be required to appear for *interview* and a *written* test at the Institute at Bombay at their own expenses on an assigned date.

The Institute provides financial assistance in the form of scholarships and freeships. Scholarships of Rs. 75/- p.m. each are awarded to 25 per cent of students admitted to each course. In addition 10 per cent of the students may be awarded free tuition on grounds of need.

Minimum Qualifications

Applied Geology : A Bachelor's Degree in Science with Geology as the Principal subject and Physics or Chemistry or Mathematics as other subject(s) with at least 55 per cent marks at the final examination.

Chemistry : A Bachelor's Degree with Chemistry (main) and Physics (subsidiary); or Physics (main) and Chemistry (subsidiary) or Chemistry, Physics and Mathematics, with atleast 55 per cent marks at the final examination.

Mathematics : A Bachelor's Degree with Mathematics (Major/Main) and Physics (Minor/Subsidiary), or with Mathematics, Physics and Chemistry with minimum 55 per cent marks at the final examination.

Physics : A. *B.Sc. (Hons.) Degree* with Physics (main), Mathematics (subsidiary) or Mathematics (main), Physics (subsidiary) or B.Sc. with Physics, Chemistry and Mathematics with at least 55 per cent marks at the final examination.

Candidates belonging to scheduled Caste/Tribes will be considered for admission provided they have obtained at least 50 per cent marks at the Final Examination. Special consideration will be shown to them in the matter of admissions and award of scholarships and Freeships.

Notwithstanding the above, a candidate possessing Bachelor's Degree in Engineering of this Institute and wishing to seek admission to M.Sc. courses in Physics, Chemistry or Mathematics may be considered on *individual merits of* the case.

Candiates who have appeared for the corresponding qualifying examination in Myy/June 1973 and are awaiting results are also eligiable to apply.

The course in APPLIED GEOLOG comprises course work on different subjects, work on an assigned problem and geological field work. The specialisation would largely be in the areas of Engineering geology, Mineralogy, Petrology and Economic geology.

The course in CHEMISTRY *offerr* excellent opportunities for training in Chemistry on modern lines. This includes Quantum Chemistry, Statistical thermodynamics, Solid state Chemistry and Physics, Crystal and molecular structure, Chemical and Electrochemical kinetics, Physical, Organic and Inorganic Chemistry, Reaction mechanism, Natu*ral Products Chemistry*, Co-ordination and analytical Chemistry, Chemical instrumentation and Application to analytical problems.

The course in MATHEMATICS offers excellent opportunities for a broad based training in Mathematics on modern lines. The contents cover basic areas of Pure and Applied Mathematics, with Statistics and Operations Research and Numerical Analysis and Computer Programming. In the second year some scope is provided for advanced training in one *of these areas. The course is designed to* make it useful either for teaching and research in Mathematics or industry oriented careers.

The course in PHYSICS has been designed to give the students a good preparation in the basic subjects such as Classical and Quantum Mechanics, Electromagnetic theory and Mathematical Physics. Workshop practice and Electronics are taught to all students by engineering faculties. In second year there is scope for specialisation in certain branches of Physics.

Application forms can be had from the Deputy Registrar (Academic) by enclosing a self-addressed stamped (50 paise stamp) envelope of size 23x10 cms. superscribed "Admission M.Sc. course(s) in..................... . Completed applications with Postal Order(s) of the value of Rs. 5/- must reach the Deputy Registrar *(Academic) by 16th June, 1973.*

Postal requests for application form, received without a self-addressed, adequately stamped and duly superscribed *envelope of the appropriate size*, or received after 9th June, 1973, will not be entertained.

INDIAN INSTITUTE OF
TECHNOLOGY, BOMBAY
POWAI, BOMBAY 400076

RESEARCH SCHOLARSHIPS/
FELLOWSHIPS IN SCIENCES,
SOCIAL SCIENCES AND
HUMANITIES
1973-74 SESSION

***Advertisement** No. 745*

Research Scholarships of the value of Rs. 250/- p.m. and Postdoctoral Fellowships of the value of Rs. 500/- p.m.

are available in Chemistry, Geology, Humanities and Social Sciences, Mathemetics and Physics.

Excellent facilities exist at the Institute for carrying out research in many of the modern disciplines in the respective departments. Application forms may be obtained from the Deputy Registrar (Academic) on request accompanied by a self-addressed stamped (50 paise stamp) envelope of size 28x13 cms. superscribed Application for Research Scholarship/Fellowship in.................

....

(Branch of Science)

Completed application forms accompanied by a crossed postal order for Rs. 5/- payable to the Indian Institute of Technology, Bombay must reach the Deputy Registrar by 20th June 1973

In the case of candidates belonging to Scheduled Caste/Tribes, special consideration will be shown in the matter of admission.

Candidates have to appear for interview at the Institute before final selection. Candidates called for interview will be paid a single III class railway fare by the shortest route from the place of residence to the Institute and back.

Minimum Qualifications

A first class or high second class Master's degree for research scholarship and Ph.D. degree for post-doctoral fellowship in the appropriate subjects.

Candidates who have appeared for the Master's degree examination and are awaiting results are also eligible to apply.

The areas of specialisation are given below:

I. *Department of Chemistry* : 1. Solid State Chemistry and Physics, 2. Crystal and Molecular Structure, 3. Chemical and Mossbauer Spectroscopy, 4. Electrochemistry 5. Thermodynamics, 6. Coordination Chemistry, 7. Analytical Chemistry, 8. Chemistry of Natural Products, 9. Synthetic Organic Chemistry.

II. *Geology* : (Deptt. of Civil Engg.) 1. Petrology and Mineralogy, 2. Economic Geology, 3. Engineering Geology.

III. *Department of Humanities & Social Sciences* (A first class or high second class Bachelor's and Master's degrees for Research Scholarship and Ph.D. degree for Post-doctoral Fellowship in the appropriate subjects). 1. English, 2. Economics, 3. Philosophy,

4. Behavioral Sciences (Psychology, Anthropology, Sociology, Management Science). A candidate is required to submit a typed note of about 600 words outlining the proposed theme of research along with application.

IV. *Department of Mathematics* : 1. Functional Analysis and Approximation Theory, 2. Complex Analysis, 3. Numerical Analysis, 4. Fluid Mechanics, 5. Elasticity, 6. Statistics.

V. *Department of Physics* : 1. Solid State Physics, Experimental and Theoretical, 2. Nuclear Physics, Experimental and Theoretical, 3. Atomic and Molecular Structure and Spectroscopy. 4. X-ray Spectroscopy and Crystallography.

Postal requests for application form, received without a self-addressed, adequately stamped and duly superscribed envelope of the appropriate size, or received after 13th June 1973, will not be entertained.

SHIVAJI UNIVERSITY, KOLHAPUR-416004

Applications are invited for the following posts:—

(1) *Chemistry* : 1 Reader—Organic.

(2) *Mathematics* : 1 Lecturer (Functional Analysis Topology, Abstract Algebra, Operation Research).

(3) *English*: 2 Lecturers.

(4) *Botany* : 1 Lecturer (Angiosperms, Physiology & Cytology).

(5) *French* : 1 Lecturer.

(6) *German* : 1 Lecturer.

(7) *Library Science* : 1 Lecturer.

(8) *Medical Officer* : 1 Post.

Qualifications & Experience :

M.B. B.S. with adequate experience.

Pay scales :

(1) Reader : Rs. 700-50-1250.

(2) Lecturer : Rs. 400-40-800-50-950.

(3) Lecturer in Library Science : Rs. 400-30-640-EB-40-800.

(4) *Medical Officer* : Rs. 400-30-640-EB-40-800.

(*i*) Non-Practising allowance Rs. 150 - P.M.

(*ii*) Vehicle-allowance Rs. 25/- P.M.

(*iii*) Plus other allowances as per University rules.

Details of the qualifications etc., alongwith prescribed form of application for the post of Reader & Lecturer can be had from the University Office. Application for the post of Medical Officer may be sent on plain paper.

Applications stating particulars regarding the date of birth, qualifications, experience, present employment etc., should reach the Registrar, Shivaji University, Vidyanagar, Kolhapur-416004, **on or before 25th May, 1973.**

Kolhapur : USHA ITHAPE
Registrar

UNIVERSITY OF INDORE, INDORE

ADVERTISEMENT

No. Estt III(3)/73

Applications are invited for the following posts in the University teaching Department of Education:—

Name of post—No. of Post —Pay-scale
Professor—1—Rs 1100-50-1300-60-1600
Reader—1 —Rs. 700-50-1250.
Lecturer—4 —Rs. 400-40-800-50-950.

The above scales carry with them Dearness Allowance and the benefit of Provident Fund and Gratuity in accordance with the rules of the University.

2. MINIMUM QUALIFICATIONS

(a) Professor

(i) Should possess a first or high second class Master's Degree in Education from an Indian University or an equivalent qualification from a foreign University.

(ii) Should possess a Research Degree in Education at Doctorate level and published research work.

(iii) Should have a minimum of ten years experience of teaching at postgraduate level in Education.

(iv) Should possess experience of guiding successfully research candidates at Ph. D. level for at least 7 years.

(b) Reader

(i) Should possess a first or high second class Master's Degree in Education from an Indian University or an equivalent qualification from a foreign University.

(ii) Should possess a Research Degree in Education at Doctorate level *OR* published research work.

(iii) Should have a minimum of three years experience of teaching post-graduate classes in Education and research —experience of three years.

(c) Lecturer

Should possess a first or high second Class Master's Degree in Education from an Indian University or an equivalent qualification from a foreign University. NOTE:—

(1) In the case of candidates holding outstanding academic and research qualifications the University may relax the condition about the period of experience by at the most one year.

(2) Knowledge of Hindi is essential for all the above posts.

3. Applications may be made on plain paper giving full particulars of name, age, academic qualifications, experience, research particulars, publications alongwith attested copies of marks statements/certificates etc. together with crossed postal order of Rs. 7 marked payable to the "Registrar, University of Indore, Indore. "The envelope should be marked APPLICATION FOR THE POST OF......." and should reach the undersigned by registered post not later than 21st May 1973.

Candidates selected for interview will be required to travel at their own expenses.

(G.N. Tandan)
Registrar.

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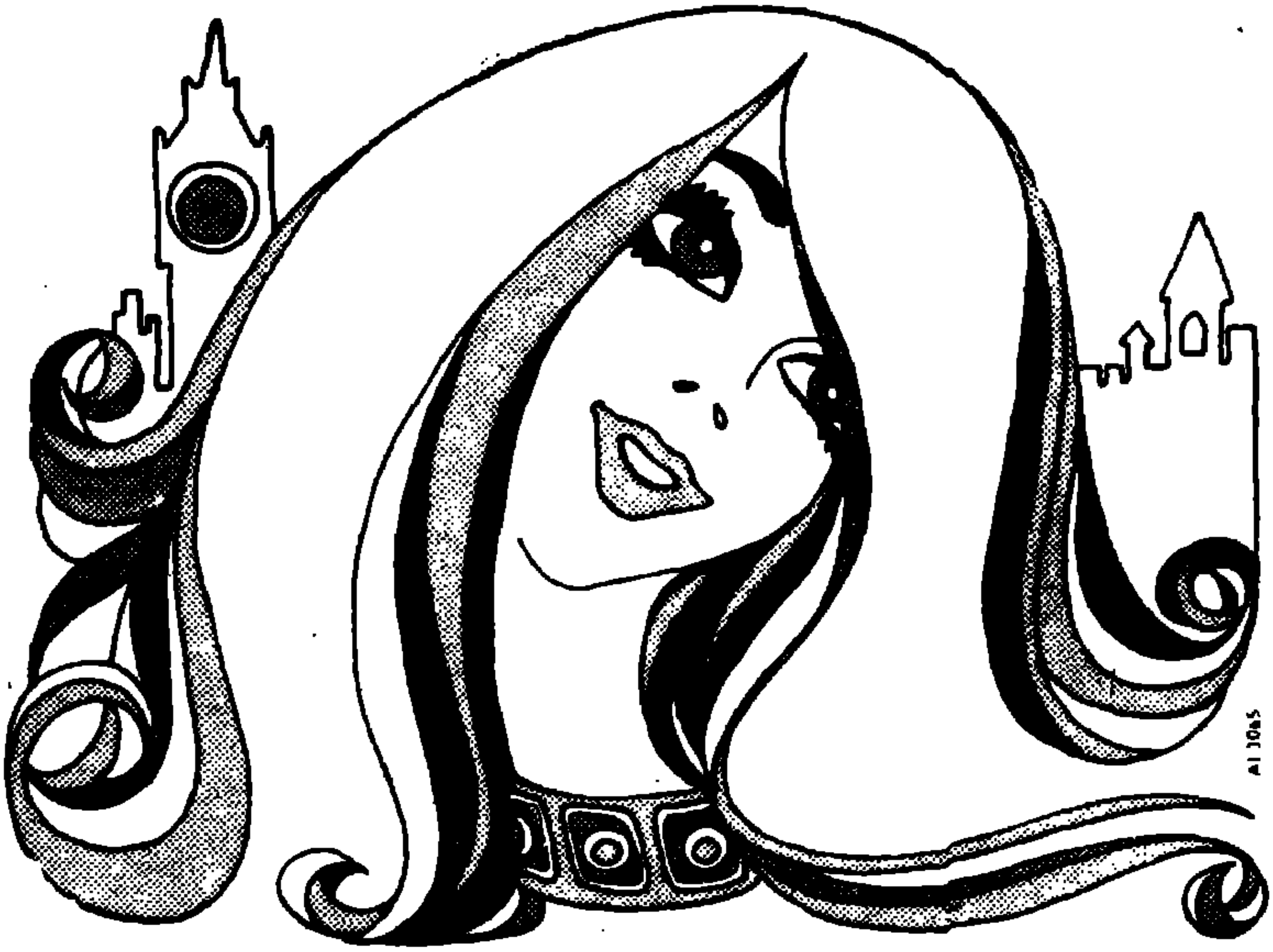

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UNIVERSITY NEWS

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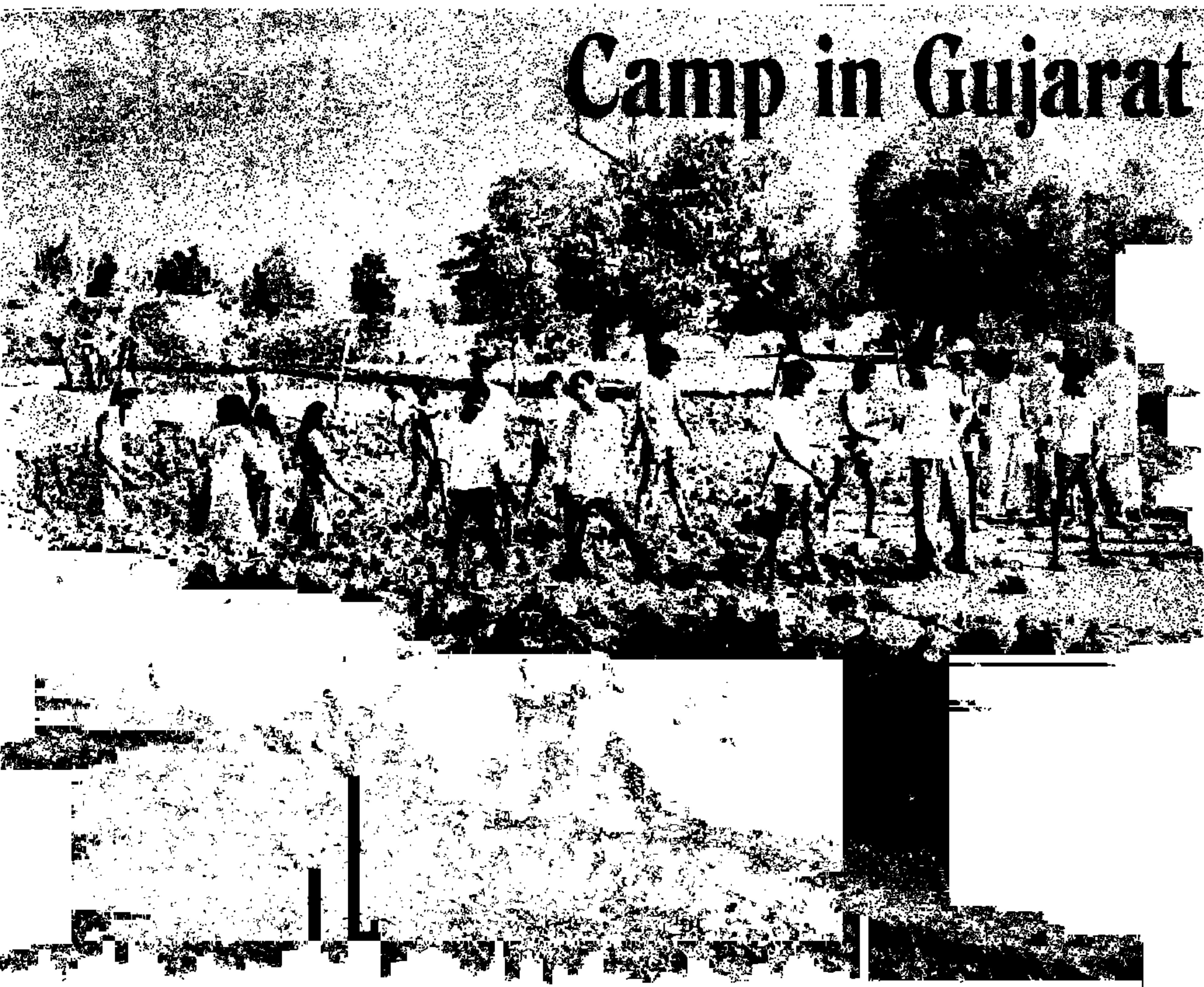

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Youth Against Famine

The Indian economy has been linked closely with the rains all these years. Their failure has led to drought and famine. Their excess has resulted in cyclone and floods, causing wide spread loss of standing crops. The available statistics show that some part of the country or the other on an average, experiences after every five years drought and scarcity conditions. In recent years India has faced serious droughts in 1965 and again during 1966-67. But the year 1972-73 has experienced unprecedented drought both in magnitude and intensity. 21.19 crores of people in two hundred twentyseven districts in twenty states have been affected. Youth against famine campaign has been launched to involve the youth on a massive and organised scale to tackle this problem.

The Government of India have agreed to meet the entire expenditure of the campaign. Forty two camps have already been concluded in Gujarat, twentysix are currently in operation. One hundred and twenty more camps are in progress in the States of Bihar, Kerala, Madhya Pradesh, Mysore, Maharashtra, Orissa and Tamil Nadu. Uptil now about 5,000 university and college students and 5,000 non-student youth have participated in these camps. Though the preparations for these camps have been delayed in certan regions due to university examinations yet the response is very encouraging. In Kerala, especially the girl students have been very enthusiastic and a number of women camps have been organized successfully. In Cochin, the girls have completed 1385 ft. of contour bundings and are busy making approach roads to paddy fields.

Our education system has failed to provide enough opportunities for the youth to come in direct contact with the community and to be of service to them. There is a big gap between the educated and the uneducated classes, the intelligentsia and the masses. The youth against famine campaign seeks to ractify the situation to some extent. Its aim is to make the students aware and conscious of their social responsibilities. The scheme provides opportunities to students and non-student youth to live and work together, and develop better understanding and appreciation of each others role in national development. Through these compaigns, students would realise the dignity of labour. They can involve themselves more closely in plannimg, organizing and executing youth projects. It will give them enough opportunity to deepen their understanding and to sharpen their skills. This would make education more relevant to present day needs and situation. An attempt has invariably been made to link the educational objectives with the developmental objectives. The projects have been designed to increase water supply, food production and to conserve soil and water supply. Lectures, symposia and debates are held within the camps regularly. Discussions with villagers are arranged to remove their difficulties. Everywhere the rural masses have come forward to extend their cooperation in a big way.

There is a harmonious way in which the government agencies, university authorities and voluntary workers are cooperating to make these programmes successful. The success of these camps has encouraged the Ministry of Education to suggest to the universities that national service be made a curricular activity. The question is under close examination of the faculties of all the universities. The University Grants Commission has also been requested to get this question examined through the various subject panels and suggest means to make national service a continuing intensive intracurricular activity.

ROLE OF AGRICULTURAL UNIVERSITIES AS AN EFFECTIVE INSTRUMENT OF SERVICE TO THE PEOPLE

A. L. Fletcher

It is an incontrovertible fact that even our agricultural universities are turning out more graduates than the public and private sectors are prepared to accept, that most of these graduates are after white-collar jobs, that a good few are unemployable and that only a small percentage ever return to the land or possess the initiative or means to start their own agro-business or enterprise. At the same time, it must be recognised that in several Universities, the faculty do not have the requisite sense of security, proper housing or basic facilities, and that practically all research scientists are temporary hands with all the attendant handicaps. Political interference in appointments and promotions may, in certain places, be another limiting factor. In certain States, the University may not be exclusively responsible for research or may not even be concerned with research at all.

In the area of extension service to farmers, Universities are not entirely responsible but share responsibility with government officials. This arrangement works well in certain States, but not so well in others.

Suggestions and Remedies

Teaching

(1) The present proliferation of graduates and postgraduates must be arrested and regulated with reference to the needs of the country in private and public sectors.

(2) Every university must make a reasonably reliable assessment of numbers of graduates and post-graduates to be produced in consultation with government departments concerned, banks, corporations, agro-industrial and business concerns and educational and research institutions, including itself.

(3) Enrolment for degree programmes should be strict and based not on marks secured in school examinations but on tests prescribed by the university. These tests may take the form of a period of six months to a year to be spent on a farm, preferably a farm run by the university, agro-industries or business, corporation or bank. The university farm should not be limited to crop cultivation but should include dairy, poultry, piggery, horticulture, custom service units for land preparation, plant protection, harvesting, threshing, service of farm machinery etc. This multi-phased farm should be an adjunct of the Institute of Agricultural Technology, Training and Education.

At the end of this period of practical apprenticeship, the student should be made to take a written test. Based on the report on the student's apprenticeship (which will be in a prescribed form) and the results of the written test, the competent authority will decide whether the candidate:

(i) is good enough to be enrolled for a degree programme; or

(ii) be enrolled for a suitable agricultural technology course of short duration; or

(iii) be advised to give up all ideas of an education in agricultural science or technology.

When it is decided to accept a candidate for a degree programme, the enrolment should not be in any particular college of agricultural science but should be in a neutral college, to be designated University College. All basic sciences and humanities will be taught in this College, and within a year of enrolment in this college, the student, with the help of his Adviser, will decide on the subject of his degree and join the appropriate college.

Training and Education

Institute of Agricultural Technology

Every university should establish, without delay, the Institute of Agricultural Technology, Training and Education. The functions of this Institute will be:

(a) to offer short-term agricultural technology courses to young farmers, potential farmers and those interested in starting some form of agro-business or industry, including custom service units for plant protection, land preparation etc.

(b) to run refresher courses for farmers, extension workers and school teachers required to teach agricultural and animal husbandry;

(c) to train agricultural science graduates to become good school teachers;

The University College

This is the College to which every student seeking admission to the University should be initially enrolled. This college will have the following functions:-

(a) to arrange for the apprenticeship of the applicant in any one of the farming operations,

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Shri A. L. Fletcher is the Vice-chancellor of Haryana Agricultural University, Hissar.

(b) to prepare the student for the entrance examination;

(c) to decide, on the basis of the student's performance during apprenticeship and in the entrance examination, whether he should be enrolled for a degree programme or in the Institute of Agricultural Technology or advised to take up some other vocation,

(d) to teach all degree students basic sciences and humanities, which is now the responsibility of the College of Basic Sciences and humanities;

(e) assist all students, including those who join the Institute of Agricultural Technology, Training and Education, to find jobs. The Directorate of Student Counselling and Placement will be a part of the University College;

(f) to prepare students for interviews, job competitions;

(g) to educate them on standards of conduct expected of a university student and the proper and effective use of facilities available on the campus.

Student Counselling System

It is unfortunate that Student Counselling is usually a farce and exists mainly on paper. The Directorate of Student Counselling and Placement will be a part of the University College and will be responsible for looking after the interests of the student from the moment he or she seeks admission to the University. Specific responsibilities of this Directorate will be:

(a) to prepare and maintain the biodata of the student from the moment he seeks admission to his departure from the University; and

(b) student counselling and placement

(c) In the last year of the Bachelor's programme, the Directorate of Counselling and Placement should contact potential employers, arrange interviews of students by representatives of such employers and when a student has been chosen for a job subject to his passing, arrange at the college concerned, such specialised training as the employer may desire. The course work in the last six months have the necessary flexibility.

Criteria for admission to M.Sc. and Ph.D. programmes should be such that only those are admitted who will make good teachers, scientists or specialists.

Procedure for award of M.Sc. and Ph.D. degrees should be suitably modified to ensure proper grading of the candidate.

Teachers

No system of education, however good, can succeed without good teachers. The quality of teaching depends to a large extent on the quality of teachers, their dedication and their human interest in and solicitude for their students. There is at present no organised procedure for bringing about improvement in the calibre of our teachers. My suggestions are:

(a) Periodic refresher courses for teachers;

(b) teaching, research and extension faculty should be treated as an integrated whole and there should be regular transfer from one area to another;

(c) exchange of teachers between universities for specified periods;

(d) assessment of a teacher's worth should be by a team of superiors, and the opinion of students should be taken into account.

Research

Our country is beset with urgent problems which call for dedicated, sustained and purposeful research. Our resources are limited, and ours is a grim race against time, and exploding population and underfed millions.

(a) research should be essentially problem and production-oriented;

(b) only supporting fundamental research should be undertaken;

(c) there should be greater coordination between universities inter se and between universities and national research institutions, to avoid duplication, ensure better collaboration and direction towards major objectives;

(d) all minor and pseudo research should be banned.

(e) Every university should establish a Centre of advanced Studies, exclusively for postgraduate teaching and research only. The faculty of this Centre should, however, be expected to deliver special lectures to undergraduates.

(f) there should be periodic and critical review of all important research projects.

Extension Education and Service

India is a land of small farmers and a great and perplexing variety of cultivation practices and cropping patterns. Add to these our inhibitions and prohibitions in food habits and the foods we can or cannot take and the great range of agro-climatic conditions. The universities must, therefore, have a dynamic and well-staffed and well-equipped extension service, capable of:

(a) rapidly transmitting the fruits of tested research to the farmer;

(b) convincing the farmer of the soundness and benefits of new techniques;

(c) persuading our people to adopt more sensible food habits;

(d) bringing about an improvement in villager's way of life, the upbringing of children and the running of their homes;

(e) making effective use of all forms of mass media;

(f) promptly tackling the farmers' problems and

—Continued on page 10

Case For Educational Technology

G. B. Shah

Educational technology is a new field. Most of the teachers do not have adequate understanding of the concept. The term now appears to have made inroads in educational literature of India. Educational technology refers to the development of a set of systematic methods and practical knowledge for designing, operating and testing schools as educational systems. It is a truism that education has been slow in using the gains of science and technology. Industry and defence on the contrary have been very quick in using science and technology for their growth.

Stolurow argues that three major factors demand the marriage of education with technology:

(a) the exploding world population;
(b) the exponential rate at which new knowledge is being generated;
(c) the changing science and technology of our current society.

Finn argues that in a technologically oriented society education should wed itself to science and technology. Education cannot wall itself off from technological advances.

In 1951, McLuhan published his book, *The Mechanical Bride*. He looked upon all media as extensions of human beings. In other words, radio was the extention of the ear, television of the eye and the ear, telephone of the tongue and so on. 'Meduim is the message', was his slogan. It is interesting to view a current man in the perspective of his historical development. The growth of communication media has remained cumulative. The man began with face-to-face oral comunication. Until the invention of writing, oral communication was the important method of communication. The development of printing multiplied enormously the give and take of messages. The invention of camera was a great leap forward in the process of comunication because of the 'illusion of reality' of a photograph. The phonograph helped in storing the oral communication, the same facility which printing added to the written word. Radio could take human voice across thousands of miles. Radio and telephone conquered the time-lag for ear, television conquered the same for both the ear and the eye. The tape-recorder provided storage facility for sound and videotape for both sound and sight. The computer is a new tool which may bring about an information revolution. It may also free the student from becoming almost a godown of information through computer assisted instruction.

The field of education is vitally concerned with the rise of mass media and the growth of technology of communication. The Educational Policies Commission of National Educational Association of the United States and the American Association of School Administrators have summarised the implications of phenomenal growth of communication technology in the following statements:

1. Mass communication has helped make a new kind of society.
2. It has given the teacher a different kind of student to teach.
3. It has modified the role of a teacher and the administrator.
4. It has provided educators with new tools which can improve teaching and increase learning.

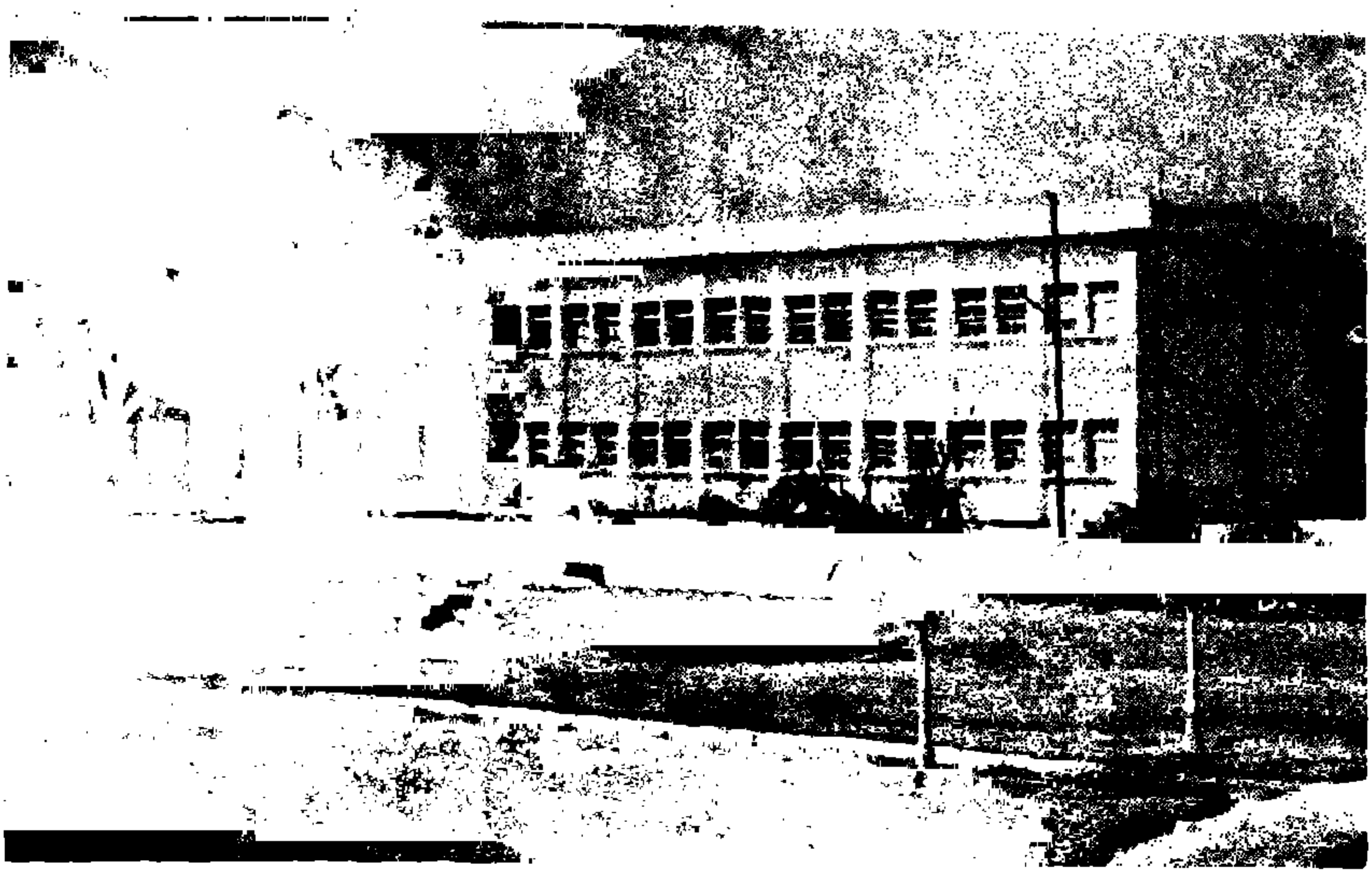
The child at the turn of the century had hardly any communication devices to grapple with until he was able to read. Now the situation is different. In the age group of 6 to 11, an American child, on an average, spends 980 hours in the school while the same child spends 1340 hours before television. By the time he is 18, he spends about 12000 hours in the school and about 22000 hours watching television. The new pupil would require new approaches to learning and teaching because of the following reasons: —

(i) The pupil of today comes to the class room with much more general information
(ii) The pupil's secondary experience is enlarged at the cost of primary experience. Lack of first hand experienee may affect learning.
(iii) The teacher loses some of his control over what is to be learned.
(iv) The teacher gets partially relieved of the delivery of expository material
(v) The teacher gets more time for other functions like guiding the underachievers, arranging discussions, providing enrichment exercises to the gifted, arranging visits to places of interest, organising and planning the use of mass media.
(vi) There are many ways to teach other than lecturing. A variety of methods and media may prove more effective than single method and medium.
(vii) Mass entertainment might affect the ability of today's student to concentrate on quiet routine communication of the class room.
(viii) Mass media increase the commonness of experiences among students.
(ix) The increased amount of facts learned outside the classroom require of the teacher better preparation because the pupils can ask penetrating questions.

The promise is great for the teacher in the new methods and media to make the process of learning

—*Continued on page 8*

Dr. Shah is Head of the Department of Education, Technical Teachers Training Institute, Madras.



Central Institute of English and Foreign Languages

The Central institute of English was set up by the Ministry of Education, Government of India in 1958 as an autonomous body managed by a Board of Governors, to improve the standards of the teaching in English in the country. The scope of the activities of the Institute was enlarged in 1972 and it was renamed as the Central Institute of English and Foreign Languages. The Institute conducts postgraduate certificate course in the teaching of English and English studies. Recently regular courses for training teachers of foreign languages at secondary and university levels have been added. A provision has also been made for specialised courses for training interpretors and translators in foreign languages. Evening courses in foreign languages are also planned. The Institute has organized various research projects and produced materials in the field of teaching foreign languages to Indian students. Recently the University Grants Commission has recognised it as a deemed University.

Teaching and Training

The academic work of the Institute is carried on by the following departments and units: (i) Department of Phonetics and Spoken English; (ii) Department of Methods; (iii) Department of Linguistics and Contemporary English; (iv) Department of English Literature; (v) Department of Materials Production; (vi) Department of Extension Services; (vii) Radio Unit; (viii) Correspondence Courses unit; (ix) Department of German. Courses in Russian, French and other foreign languages for teachers are proposed to be started shortly.

Research

One of the important activities in the Institute is research on problems connected with the teaching of English at all levels of education in India. The Institute awards research fellowships to encourage scholars to work in various fields. Research associates are also appointed to work on projects taken up by individual departments. The Institute has been recognised by a number of universities as a Centre for research leading to the award of their Ph.D. degrees. Some of the important areas of research at the Institute are: (i) Phonetic and Spoken English; (ii) Remedial English; (iii) Improvement of reading skills; (iv) Contrastive Studies; (v) Description of Indian English; (vi) Language Teaching through Literature; (vii) Preparation of suitable materials for professional courses in science, technology and agriculture.

Teaching materials

Textbooks: The Institute has completed two series of textbooks for schools, teachers guides and work-books. The Institute at present is preparing an intensive reading course for college entrants, a programmed self-instructional courses in Tamil/Hindi speakers and selections in prose and poetry for university classes.

Radio Unit: The Institute broadcasts a continuous course of radio lessons in English for classes 8 and 10 in Andhra Pradesh. It is also producing radio companions for the Institute textbooks. The unit will be shortly producing radio and TV lessons in English suitable for use all over the country.

Language Laboratory: The Institute has prepared materials in the following areas for use in language laboratories: (i) Course in Spoken English; (ii) Remedial lesson in English pronunciation and poetry, prose and conversation lessons. These and other recorded materials are copied, free of charge, for the use of educational institutions which send blank tapes for this purpose.

Extension: In order to ensure wide dissemination of information and the adoption of modern methods and techniques of teaching English at secondary and university levels in the country, the Institute, through its extension service department, keeps in close touch with the academics and administrative bodies connected with English language teaching in the country. There is a free flow of information and materials of all aspects of English Language Teaching between the Institute and various ELTs in the country. The annual conferences organised by the Institute serve as a forum for discussion of problems of English language teaching at different stages.

Cooperation with UGC

In collaboration with the U.G.C. and the British Council, the Institute organises summer institute in English for university teachers. It prepare syllabuses, teaching materials and book lists and also gives staff assistance.

Seminar and Conferences

In order to create an awareness of the need and the nature of reforms to be brought about in the field, the Institute brings together educational administrators and specialists through periodical seminars and conferences. Seminar of State Directors of Education, Chairman of Board of Secondary Education, University Professors of English and Chairman of Board of Studies in English, Heads of University Departments of English and University Teachers have been organized by the Institute from time to time.

Consultancy Services

The Institute helps the universities, colleges and other professional bodies in improving the standard of English language teaching by conducting on-the-spot studies of the English language teaching situation in the region, suggesting reforms in their syllabuses, developing and supplying audio-visual and other instructional materials and in special cases, lending the services of its experts.

Information Centre

The Institute runs an archives and information centre where the latest papers, articles, theses and dissertations on various aspects of ELT are collected. The materials are available for educational institutions and research scholars. The Institute has also prepared a directory of ELT experts in the country, which is periodically updated.

Publications

The Institute brings out an annual bulletin which contains the findings of research carried on by the members of the faculty and the research fellows at the institute. The half-yearly news letter is a forum for the presentation and discussion of ideas and problems related to English and foreign language teaching. Besides, various research nomographs and textbooks have been published.

Admissions

The total number of places available on the Certificate and Diploma courses in the Teaching of English and the Diploma Courses in English Studies is sixty. Teachers in service are admitted on the recommendation of State Education Department, Universities and Heads of the Institutions concerned. A stipend of Rupees two hundred per month is made available to the trainees by the Institute. Besides, a limited number of merit scholarships are available for fresh postgraduates who seek admission to the various courses. Research fellowships are also available for advanced studies.

Continued from page 6

more meaningful. What is needed is preparedness to change, preparedness to experiment and perception of the new role. The kitchen gadgets are gradually changing the role of housewife. Advances in technology have affected our ways of living, working and playing. It cannot but affect the class room communication. Robert W. Sarnoff, President of RCA which makes computers seems to be correct when he says:

> "One day man will look back and consider the introduction of computers in the class room as significant a development as the introduction of text books two centuries ago."

Kenneth Richmond in his book, **The Education Industry** put forth his conviction that educational technology is destined to emerge as the human discipline of the future. We can take Richmond's observation with a grain of salt and remember Ottinger's warning in his book, **Run Computer Run**. He argues that contemporary instructional technology can lead to genuine improvements in education, provided that it is not force-fed, oversold, and prematurely applied.

Patterns of College Governance

Mohinder Singh

Once again some rethinking has become essential over the issue of College governance. Recent development all over the country have revealed that Colleges should be the last place to toy with conceptions that may in any way weaken the capacity to handle problems that keep on cropping up every moment.

The experiment of bigger Staff Councils with wider powers was initiated in Delhi some time back to tone up the College administration which had become, by and large, ineffective at many places. While many Councils worked well to justify the dose of democratisation, a few have posed problems that require immediate answers. Basically, the governance pattern should be such which must generate congenial atmosphere which is so vital for smooth functioning of any seat of higher learning.

The basic issue is that most of the reforms at the University level during the last few years have been largely concerned with the College governance. Somehow the University Departments and the Faculties have been left out practically untouched. This happened because the Teachers' Association which championed these reforms has mainly on its rolls College teachers who were vocal concerning the problems of functioning of the Colleges. Moreover, the students also clamoured for various changes in the College governance patterns since they faced problems there. But like the teachers, the students organisation also represents mainly the Colleges and thus both at the teachers' level as well as at the Students' level, the urge for reforms found itself most vocal at the College level.

One-Sided Development

The result of this practically one-sided development in Delhi has been that the pattern of University structure which had been evolved in long years as a corrollary of its federal character got upset. The University governance pattern has been that it has two effective authorities, namely, the Academic Council and the Executive Council—the Academic Council is a deliberative body legislating on academic matters in the University; while the Executive Council is the highest executive authority. The same pattern, in vague, had existed in the College: the earlier version of the Staff Council advised the Principal on academic problems concerning the College governance whereas the governing body was the highest executive authority in the College. But after the amendments in the Ordinance, a new dimension was added to the functioning of the Staff council by making it also an executive authority in many matters. Keeping in view the size of the present Staff Council in every College, the combination of the deliberative aspect as well as the executive aspect of it has raised problems in the functioning of the Colleges. The Ordinance provided that the Staff Council is also the implementing authority. It is thus obvious that at the time of the introduction of the new Ordinance of Staff Council these aspects were not fully taken into account.

Another problem that arose was that the functions of the governing body, the Principal as well as the Staff Council were not clearly defined. There is an obvious overlapping and this has caused confusion many a times.

Parity in Pattern

If the federal character of the University has any sanctity, it becomes necessary that the governance patterns in the University should remain similar to the governance patterns at the College level, as far as possible. This can be ensured only by recognising Staff Councils at par with the authority and functioning of the Academic Council. The Staff Council should continue to have say in legislating on all academic problems faced by the College.

At the same time, the College governing body should function at par with the Executive Council in the University. For this, the composition of the Executive Council will have to be re-shaped to the extent that some representation will have to be given to the various interests in the College life, namely, teachers, non-teaching staff and students. Such a composite Governing Body can effectively look after the executive problems of the College and can wield an appropriate executive authority.

Pivotal Role

The role of the Principal in this set up requires a little discussion. Like the Vice-Chancellor, the Principal is the Chairman of the Staff Council and implements the policy decisions taken by the Staff Council. At the Governing Body level, however, there is a minor difference. The Vice-Chancellor is the Chairman of the Academic Council and he also presides over the Executive Council whereas the Principal of the College is the Secretary of the governing body and the Chairman is an outsider. But with the reorganisation of the governing body as proposed above, the Principal, even in his capacity as Secretary, will have practically the same important role in the governing body as the Vice-Chancellor has in relation to the two statutory authorities at the University level. As Chairman of the Staff Council, the Principal should be in a position to convey and carry conviction with the governing body over the policies framed by the Staff Council and also to advise the Governing Body to take decisions consistent with policies approved by the Staff Council. It is also his duty to convey to the Staff Council the major decisions taken by the governing body. Thus the Principal must remain an important link between the two important authorities of the College, namely, the

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Dr. Mohinder Singh is the Principal of Deshbandhu College, Delhi.

staff council and the governing body. The Principal also is the Chairman of the non-teaching Staff grievances committee as well as of any machinery that may be devised concerning the grievances of the students. The whole structure should be such where the Principal can function democratically and effectively as the spokesman of the staff council on the governing body as well as of the various other interests whose welfare he is to look after by virtue of being the head of the institution.

It is thus obvious that the essential step to remove present haze of confusion is to ensure that the governnance patterns of the Colleges are more or less similar to those prevailing in the University. Unless this is done, contradictions will crop up and the Colleges will immediately become something 'inferior' in the University scheme of things and the fear of the teachers of delinking of Colleges would become more real. Keeping this in view, the University patterns can also be made more democratic at the Departmental as well as the Faculty levels on the lines it is evolved at the College level.

Continued from page 5

rendering sound advice and guidance as and when called upon.

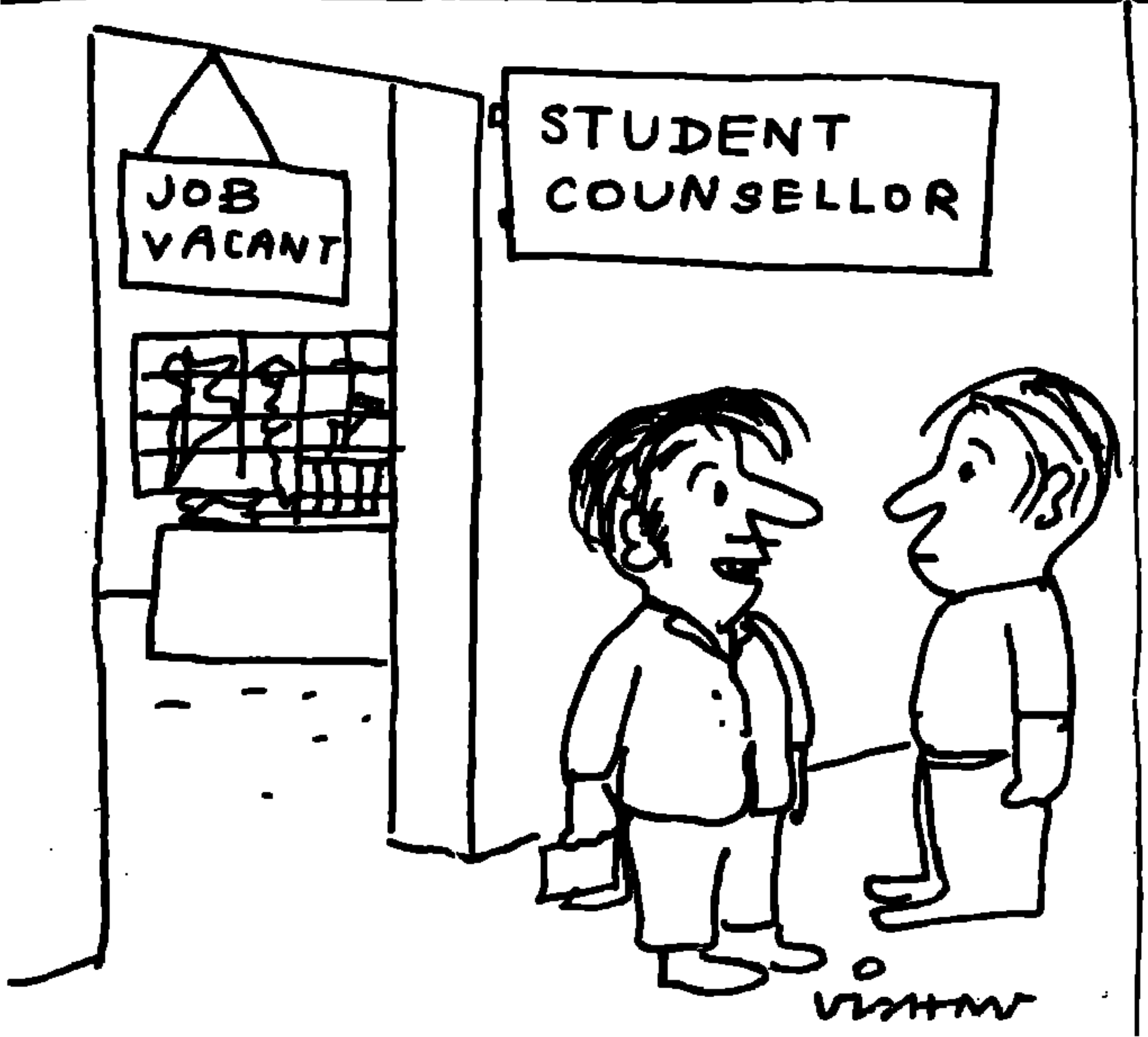
To enable the Extension Service Organisation of the University to discharge the above responsibilities effectively, I have the following suggestions, to complement what normally exists:-

(a) there should be a well-planned, well-equipped and well-staffed Farmers Advisory Service Centre at each district headquarters.
(b) every district FASC should have a well-equipped Demonstration Van;
(c) the subject-matter specialists attached to each district Centre should have mobility.
(d) the District Centres should be built, wherever possible, next to the office of the District Agricultural and Animal Husbandry Officers;
(e) attached to each District Centre should be a farmers' hostel with a capacity ranging from 100 to 200;
(h) All India Radio should open a broadcasting sub-station wherever the main Campus of the University is located.

Students

Students have several problems and unless adequate attention is paid to these problems, their education and the valuable years spent by them at our universities will be wasted.

The major problem is of employment. If our small farmers and those who are likely to be allotted 'surplus areas' are to step up food production, they must get better technological support and extension education and service than at present. This can be achieved in a variety of ways, including putting greater number of agricultural graduates, suitably trained, in the field as extension workers and agricultural and animal husbandry graduates as teachers of agriculture and animal husbandry in our rural schools and the opening of a certain number of 'agricultural schools' in each State.



"He left on finding a good post for himself abroad. . . ."

Personal

Shri R.P. Padhi has taken over as the Vice-Chancellor of University of Rajasthan with effect from May 22, 1973.

Dr. H.R. Arakeri has been appointed as the Vice-Chancellor of the University of Agricultural Sciences, Bangalore with effect from June 12, 1973.

Dr. S.D. Choubey has been appointed as the Registrar and Comptroller of Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur with effect from April 20, 1973.

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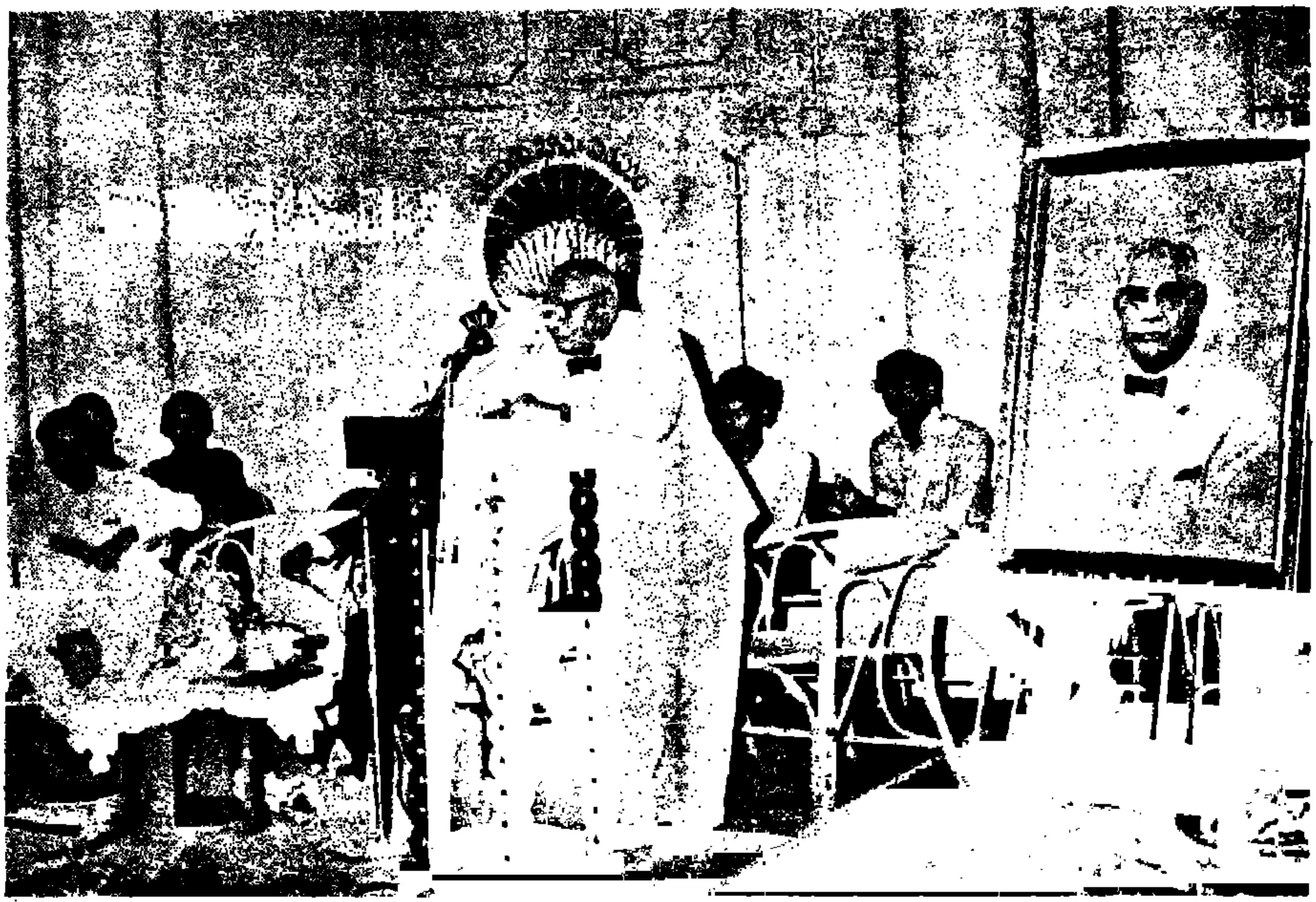
Applications by persons in India should be made on the *prescribed forms* obtainable free of charge from the Registrar of the Institute by sending a *self addressed* envelope of 25 cmx10 cm size. Candidates called for interview will be paid Second Class Railway fare from the place of residence to Bombay and back by the shortest route.

Persons abroad may apply on plain paper (three copies) giving an account of their academic and professional records, classes at examinations, grades in courses, lists and if possible copies of research publications, fields of specialization, etc. and names with addresses of *three persons* who can speak for the applicant's scholastic abilities and personality.

Applications should reach the Registrar, Indian Institute of Technology, P.O. I.I.T., Powai, Bombay 400076 by 10-7-1973.

Telugu Bhasha Sangham felicitates Dr. D.S. Reddy



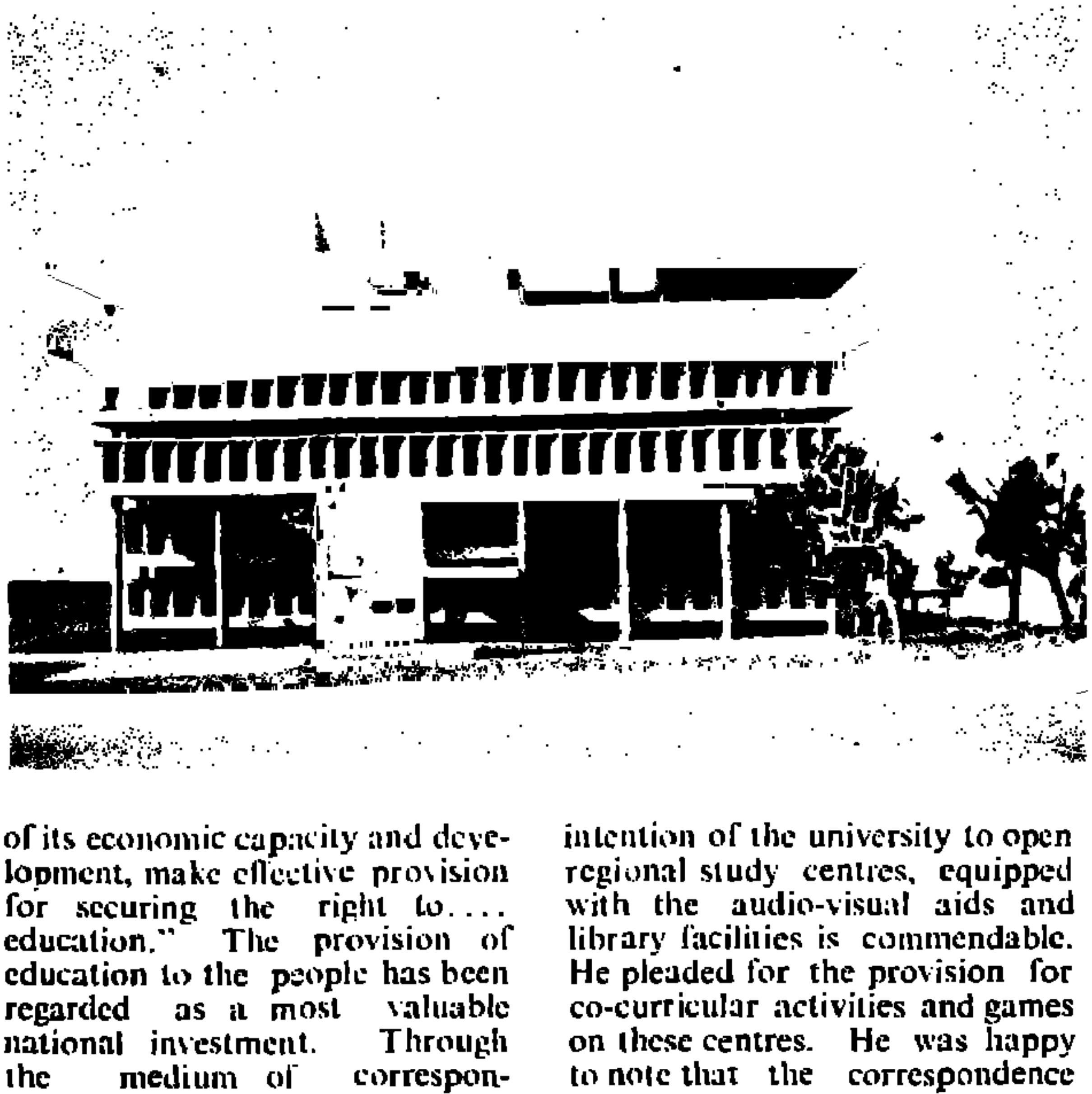
Dr. D. S. Reddy, alongwith Shri Narotham Reddy, Vice Chancellor, Osmania University at the function organised by Sangham.

The Telugu Bhasha Sangham recently organized a function to felicitate Dr. D. S. Reddy, the distinguished educationist and former Vice-Chancellor of Osmania University on his 75th birthday. Mr Gopalrao Ekbote, the Chief Justice of the Andhra Pradesh High Court presented Dr D. S. Reddy's birthday souvenir on this occasion. Shri Narotham Reddy, Vice-Chancellor of Osmania University unveiled a portrait of Dr. Reddy and accepted it on behalf of the university.

Tributes were paid to Dr. Reddy by several speakers. Prof S. K. Kumar of English Department said that Dr Reddy's courage, fairness and humanistic approach had carved a special place in the university. He always acted without fear and favour. He had been an educational warrior and had put the university on the path to progress. Mr Narotham Reddy, Vice-Chancellor of Osmania University said that Dr Reddy has always been a source of inspiration and guidance to the youth. Mr Gopalrao, referring to the Supreme Court judgment over the termination of Dr Reddy's servics as Vice-Chancellor before his term was over said that neither the executive nor the legislature should interfere with the autonomy of the universities. He said that it was Dr Reddy who laid the foundation of the growth of vocational and technical education besides foreign languages department in the university. Prof Krishnamurthy, Principal, University College of Arts and Commerce and Mr K. Natesan, Principal, Evening College of Law also spoke highly about the courage and conviction of Dr Reddy. It was announced that the Telugu Samgham would be instituting Dr D. S. Reddy gold medal in Osmania University shortly.

Panjab University Correspondence Deptt. to have its own building

Dr G. S. Pathak, Vice-Chancellor of India while laying the Foundation stone of the building of the Directorate of Correspondence Courses, Panjab University said that many countries of the world have adopted correspondence courses as a new technique of teaching to meet the increasing demand for education. The right to education is included in the Universal Declaration of Human Rights of UNO. Our constitution also envisages that "The State shall, within the limits of its economic capacity and development, make effective provision for securing the right to.... education." The provision of education to the people has been regarded as a most valuable national investment. Through the medium of correspondence courses countries have been able to provide education to the people at large despite enormous shortages of teachers, buildings and equipment.



It was as far back as 1885 that certain institutions in Berlin used this method for teaching languages. Since then experiments in this field have been carried over in USA, USSR, Australia, and Germany. The success of the Open University of Britain has been applauded everywhere. In Russia and East European countries this system is becoming more popular.

The Panjab University has the second biggest directorate in the country with over 10,000 students on its rolls. Dr Pathak was happy that the university in addition to using the correspondence material was also insisting on personal contact programmes and Radio communications. The intention of the university to open regional study centres, equipped with the audio-visual aids and library facilities is commendable. He pleaded for the provision for co-curricular activities and games on these centres. He was happy to note that the correspondence education was tackling the problem of unemployment facing the youth by providing diplomas and job-oriented degrees. He emphasised the necessity of having research cells for studying the techniques and methodology of correspondence courses and suggested that regional open universities should also be established to serve the educational needs of the people in regional languages.

Shri Suraj Bhan, Vice-Chancellor of the university while extending a cordial welcome to the Chief Guest informed that the correspondence courses were not very popular among the people of this region but it was gratifying to note that students in some of the foreign countries have also enrolled for these courses. He referred to the efforts of the university to personalise and humanise the correspondence education. He said that there was a proposal to pen guided study centres at important regional stations, which would have all the facilities under the supervision of a co-ordinator. The student could also discuss their academic problems with him and seminars and academic discussions could be arranged periodically at such centres.

The Vice-Chancellor referred to the apprehensions of the critics of correspondence courses as to the deterioration of the standards. He said that these were misfounded and are not applicable to the modern phenomenon of correspondence study which is a highly evolved form of its counterpart in the past with the powerful and effective media of communications, audio-visual aids like tape-recorded lessons, linguaphones and films supplemented by personal contact programmes and regional study centres. The teachings of correspondence education provides a better motivated approach to learning. The statistical data collected by University Grants Commission regarding the performance of the students in such courses is highly revealing. The results of correspondence students have shown a marked improvement both qualitatively as well as quantitatively over those of the regular institutions. So the correspondence courses should not be considered inferior to institutionalised study in any way. They are unique in the way that they are individual—oriented through guided effort at self growth,

The Directorate of Correspondence Courses was started as a constituent department of the university, only in 1971. In beginning, it confined its programme of imparting postal instructions to students upto B.A. level in the subjects of English, Hindi, Punjabi, Sanskrit, Political Science, History, Economics, Geography and Mathematics. During the years the enrolment has gone up considerably. The Directorate has four main functions namely preparation of lecture scripts, evaluation of response sheets, radio talks and conveying instructions and arranging personal contact programme to supplement oral teaching. Quick evaluation of response sheets is the back-bone of the whole scheme. The instructional and presonal contacts programmes brings the students teacher together and this helps in removing the individual difficulties of the students.

The proposed five storeyed building will have a full basement for storage of lessons, stationery and records. The office of the Director, his two assistant registrars and other administrative officers would be located on the ground, first and second floors while the faculty and reference library would be housed in the third and fourth floors. The top floor would have a large Lecture theatre with provision of audio-visual aids, an exhibition space and a restaurant, which would be used by the faculty, students and administrative staff of the directorate

HIMACHAL GOES AHEAD WITH THE SCHEME OF RE-EVALUATION

The University of Himachal Pradesh after careful consideration has introduced a scheme of re-evaluation of scripts. This has reassured the candidates that overtones of subjectivity will not be allowed to play a part in the evaluation of their scripts. The scheme is like this : (i) On receipt of application for re-evaluation, the answerbook is collected without delay; (ii) The title page of the answerbook is removed and the original markings on all parts of the answerbook are covered by a thick coloured plastic tape to make them invisible: (iii) A cyclostyled award list, with fictitious roll number, name of examination, subject and title of paper written on it, is attached to the answerbook. The examiner does not write anything on the body of the answer but enters the score for each question on the award list; (iv) The answerbook, alongwith the question paper and a copy of the detailed instructions drawn by the Head Examiner is sent to the re-evaluator. About six marked answerbooks are also sent to the re-evaluator so that he may have an idea of the general standard of original marking. These six answerbooks are of different categories : two scoring high marks, two scoring about pass marks and two of candidates failing in that paper; (v) When the answerbook is received back from first re-evaluator, the award list is removed and is kept in the office. A new blank award list is attached to the answerbook and is then sent to the second re-evaluator; (vi) Thus the university gets three awards from examiners, each of whom has re-evaluated the answerbook independently without getting a chance to know the marks awarded by others. The average of any two of these scores that are nearer to each other becomes the final score. In case all the three scores are equidistant from one another, the average of the two higher scores is taken as the final score to give benefit to the examinee.

A score of re-evaluation is based on the award given by three independent impartial examiners. In few cases the final score of re-evaluation comes out to be exactly the same as the original one but in most cases it is different and the extent of variation—upwards or downwards—naturally differs from one case to another. Although all steps are taken to avoid delay in the declaration of the results of re-evaluation, yet it has been experienced that in a few cases delay cannot be avoided. For the sake of impartiality and efficiency, only eminent scholars in respective fields are appointed as the re-evaluators.

The results on re-evaluation, whatever it is, supersedes the previous result and an understanding to abide by this rule has to be given by the applicants.

DRYLAND AGRICULTURE WORKSHOP HELD AT INDORE

The fourth annual workshop of the All India Coordinated Research Project on Dryland Agriculture was inaugurated by Dr J. S. Kanwar, Deputy Director-General of the Indian Council of Agricultural Research at the College of Agriculture, Indore. Dr Kanwar in his inaugural address pointed out that the dryland strategy needed careful handling. He said that crop variety, fertilizer and soil moisture were the four pivots of dryland technology. Fertilizer could play an important role provided proper method, time and doses were determinded to give sizeable returns. Dr Kanwar emphasised the necessity to evolve an operational research which could demonstrate the technology to the farmers. The workshop was attended by over 300 delegates, scientists and invitees from diffrent States. Dr C. Thakur, Vice-Chancellor of the university emphasised the need for the quick evolution of economically viable and sound dryland technology through research. The need was greater in Madhya Pradesh where only 8.1 per cent of the total cultivated area was irrigated. Considering the special circumstances of agriculture in the state, the university has resolved that the leading research extension programmes be so oriented as to develop dryland agriculture in the state including the cultivation of grasses. A separate department of dry farming technology was already under the consideration of the authorities of the university.

> "Political factionalism through direct interference in the academic affairs of the University has continuously eroded academic authority without realising that the erosion of academic authority will lead to the repudiation of all authority and will ultimately create chaos in society. The present crisis in our universities is both a warning and an opportunity; but the danger which threatens their very existence can be averted if the academic community remains vigilant. It is also an opportunity for us to have a fresh look at the institution, to take stock of the situation and to suggest new designs which would make the University more relevant to our times. The University can thus meet the present challenge by becoming purposefully and actively engaged in the adventure of the social process."
>
> **DR K. L. SHRIMALI**
> **AT SAMBALPUR**
> **CONVOCATION**

BHOPAL'S FIRST CONVOCATION

The first annual convocation of Bhopal University for awarding postgraduate degrees was held recently in the campus of the Regional Engineering College. Shri Satyanarayan Sinha, Governor of Madhya Pradesh and Chancellor of the University presided and delivered the convocation address. Delivering the convocation address, Shri Sinha called upon the youth to be self-reliant and to utilize the knowledge which they have gained in not only finding gainful employment for themselves but in creating an attitude of national service among the people. He laid special emphasis on maintaining eternal values in our culture and spiritual heritage and pleaded for a synthesis of ancient tradition and modern knowledge.

The university conferred the degree of Doctor of Laws (Honoris Causa) on Dr Shankar Dayal Sharma and Dr Nagendra Singh and the Degree of Doctor of Science (Honoris Causa) on Shri K. B. Lall, Ambassador to the European Economic Community, Brussells. Dr Sharma and Shri Lall took the degree in person but the award of the degree to Dr Nagendra Singh was made in absentia. The citation presenting Dr Sharma referred to his many-sided service to Bhopal in developing it educationally and industrially. The citation presenting Dr Nagendra Singh extolled his great work in the field of international law and his being a recognised authority on the subject, both in and outside the country. The award made to Shri K. B. Lall was in recognition of his contribution to the development of India's trade and commerce.

About 2,000 students took their postgraduate degrees in various faculties. Twenty seven gold medals and twenty eight silver medals were awarded to students who took the first and second position respectively in the postgraduate examinations in different faculties.

PANTNAGAR STARTS CORRESPONDENCE COURSE FOR FARMERS

The G. B. Pant University of Agriculture and Technology has started a correspondence course for the benefit of farmers and others concerned in agriculture. This is the first correspondence course of its kind in India. This course is quite different from the usual correspondence courses which are offered by traditional universities. The course of Pant University envisages to equip the farmers with the latest technical knowhow. Besides, giving practical hints, the course would also endeavour to educate the farmer about the important fundamental principles of scientific farming. There would be separate correspondence courses for Kharif and Rabi crops. These courses have been very well received by the farmers of U.P. and other states. A nominal fee of Rupees ten is being charged to cover the cost of course book. The course in practice is thus virtually free for the farmers all over the country.

NEW RICE VARIETY RELEASED BY P.A.U.

The Punjab Agricultural University has recently released a new variety of rice called RP 5-3 which is noted for high yield and its fine grain. This is the result of an extensive breeding programme started in 1965 under All India Coordinated Rice Improvement Project in which university participated.

The new variety has many advantages over IR-8 and Jaya varieties. In respect of time required for ripening and the plant-height it is similar to Jaya but its grain is more slender and clear and cooks better. Dr. S. S. Saini, Rice Breeder of the university has been responsible for an early release of this variety.

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NEWS

National Service Activities at Kurukshetra University

Reported by Staff Correspondent

N.S.S. volunteers constructing Link Road in Jyotisar

Kurukshetra University has prepared a comprehensive plan to make "Youth Against Famine" campaign a success. Ten camps will be held in the villages around Kurukshetra to achieve the objective.

This is the first time that the National Service Scheme Committee of Kurukshetra University has collaborated with the voluntary social welfare organisations of the district. The university has provided 750 students and the Nav Jeevan Sangh working in Kurukshetra District under the Chairmanship of Shri G.L. Nanda M.P., will provide 250 social workers amongst youth.

The funds for the camps have been provided by the Government of India. University Teachers will be camp commandants and a social worker of the camp area will be supervisor of each camp.

Activities of the N.S.S. have become more community oriented in the current session. Notable achievements have been made in the field of community service and Adult Education.

Laying of a park on the bank of Snehat tank, one of the holiest of pilgrimage centre was an important project completed by the N.S.S. volunteers of the Government College, Kurukshetra. Shri G.L. Nanda visited the site of the project during the working hours and paid glowing tributes to the students' new awareness and sense of dedication to voluntary social welfare activity.

The second project under the area of community development was a major task of revamping the cremation ground which was located in a low lying area and was in a state of utter neglect and delapidation.

The third project under the community development was the construction of a link road in the village Jyotisar, birth place of the Holy Gita.

Recently special emphasis has been laid on the literacy drive campaign. One hundred fifty students of Government College, Kurukshetra took up this project and ran five Adult Education centres at Thanesar, Taraoti, Ladwa, Shahbad, the college campus and the hostels. The students coming from rural areas carried on the literacy drive campaign in their respective villages.

The students of various colleges and departments took keen interest in maintaining the cleanliness of their institutions. They also rendered service in beautifying the campus, laying orchards and rose gardens on the campus.

The NSS volunteers performed service in the Referral Hospital situated on the campus which has now become district hospital after the creation of Kurukshetra District. The volunteers enthusiastically donated blood for the needy.

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ADMISSION TO POSTGRADUATE DEGREE/DIPLOMA COURSES IN ENGINEERING (1973-74 SESSION)

Applications are invited for admission to the following postgraduate courses leading to the DEGREE OF MASTER OF TECHNOLOGY (M. TECH.) in: (i) AERONAUTICAL ENGINEERING (ii) CHEMICAL ENGINEERING (iii) CIVIL ENGINEERING (iv) ELECTRICAL ENGINEERING INCLUDING ELECTRONICS (v) MECHANICAL ENGINEERING (vi) METALLURGICAL ENGINEERING and the following postgraduate diploma courses (DIIT): Chemical Engineering Dapartment (1) FURNACE TECHNOLOGY, Civil Engineering Department (1) DOCK AND HARBOUR ENGINEERING (2) APPLIED HYDROLOGY. Electrical Engineering Department (1) Computer Science.

The M.Tech. courses are of two academic years' duration. The DIIT courses are of one academic year's duration. Both the courses are scheduled to start on 1st August 1973. Scholarships of Rs. 250/- p.m. are awarded to unsponsored students admitted to these courses. Hostel accommodation is available to all students.

Candidates will be selected by a test and interview at the Institute at Bombay. The candidates are to meet their own expenses for interview.

Minimum Qualifications

M.TECH COURSES

A Bachelor's degree in the appropriate branch of engineering (Aeronautical, Chemical, Civil, Electrical, Electronics, Tele-communication, Mechanical or Metallurgical) with at least 55 per cent marks in the qualifying examination or an equivalent qualification obtained by virtue of an examination, as recognised by the All India Council of Technical Education.

Candidates with a Master's Degree in Physics with Wireless/Electronics/Radio physics, as special subject(s) will also be considered for admission to some of the courses in Electrical Engineering, Electronics, provided they have passed the qualifying examination with at least 55 per cent marks.

CANDIDATES BELONGING TO SCHEDULED CASTE/TRIBE WILL BE CONSIDERED FOR ADMISSION PROVIDED THEY HAVE OBTAINED AT LEAST 50 PER CENT MARKS AT THE FINAL EXAMINATION. SPECIAL CONSIDERATION WILL BE SHOWN TO THEM IN THE MATTER OF ADMISSIONS AND AWARD OF SCHOLARSHIPS AND FREESHIPS.

D.I.I.T. COURSES

Furnace Technology—At least a second class Bachelor's degree in Chemical, Mechanical or Metallurgical Engineering, a Silicate or Fuel Technology, or equivalent *qualification by virtue of examination* as approved by the All India Council of Technical Education.

Dock and Harbour Engg—At least a Second Class Bachelor's degree in Civil Engineering.

Applied Hydrology—At least Second Class Bachelor's degree in Engineering, or a good Master's degree in Science (Physics, Chemistry, Mathematics, Geology, Geophysics, Meteorology, Agriculture).

Computer Science—(a) At least Second Class B.E./B.Sc. Degree in Electrical Engineering Electronics Communications or Tele-communications from a recognised University or equivalent degree or

(b) M.Sc. in Physics (with Electronics) or

(c) As a special case, B.E. or M.Sc. Degree in other areas of specialization may be admitted, provided they have sufficient background in Electronics and Mathematics.

Candidates who have appeared at the coresponding qualifying examination and are awaiting results, are also eligible to apply.

Experience in a relevant field will be considered desirable qualification. Other things being equal, candidates with experience in the relevant field and those sponsored by Government, Quasi-Govt. Educational or Industrial Orgnizations will be given preference.

The following electives are offered for the M. Tech courses for the 1973-74 Session.

Aeronautical Engineering

(1) Aircraft Design and Production (2) Aircraft Propulsion (3) Control and guidance (Graduates in Civil Electrical and Mechanical Engg. are also eligible).

Chemical Engineering

(1) Automation in Chemical Industries (2) Electrochemical Technology (3) Inorganic Process Industries (4) Organic Process Industries (5) Technology of Cellulose (6) Technology of Fuels (7) Technology of Silicates (8) Unit Operations.

Civil Engineering

(1) Hydraulic Engineering (2) Soil Engineering (3) Structural Engineering.

Electrical Engineering

(1) Communication Engineering (2) Electron Devices Technology (3) Energetics (4) Instrumentation, Control and Computers.

Mechanical Engineering:

I—Design and Production Group

(1) Machine Tool Engineering (2) Machine Design (3) Metal Forming and Metal Casting.

II—Heat and Power Group

(4) I.C. Engineering (5) Refrigeration Engineering 6) Thermal Power Engineering (7) Fluid Power Engineering.

Graduates in Aeronautical Engg. are eligible for admission to electives at (1), (4) and (7).

Metallurgical Engineering

(1) Extractive Metallurgy (2) Ferrous Process Metallurgy (3) Physical Metallurgy.

Application forms can be had from the Deputy Registrar (Academic) by enclosing a self-addressed stamped (50 paise) envelope of size 23 x 18 cm" and superscribed "Admission—M. Tech./DIIT Course in (——————————————————)

(Mention here Branch of Engineering/ Course). Completed applications with Indian Postal Order for Rs. 5/- must reach the Deputy Registrar (Aademic) by 30*th June* 1973.

THESES OF THE MONTH

PHYSICAL SCIENCES

Mathematics

1. Das, G. Studies of divergent series and integrals. *D.Sc.* University of Jabalpur.

2. Kulli, V.R. Inter-change graphs and some planar graphs in graph theory. Karnatak University.

Physics

1. Kartha, C. Gopinathan. Ultrasonic studies of liquid crystals, M.S. University of Baroda.

2. Shrivastava, Vasant Dev. Study of the L. absorption spectra of some rare earth metals. Vikram University.

3. Siddappa, K. Studies on the P-wave neutron strength functions in heavy nuclei. Andhra University.

Chemistry

1. Bennur, S.C. Synthetic studies in pyrimidine Chemistry. Karnatak University.

2. Bhat G.A. Synthetic studies in the indole field. Karnatak University.

3. Bhatnagar, Narayan Prasad. Studies in paper chromatography of some metallic ions in presence of organic and inorganic complexants. Jiwaji University.

4. Dhupar, S.C. Metal complexes of chromotrope 2R and bromopyrogallol rod. Birla Institute of Technology and Science, Pilani.

5. Garud, Anil Kumar Balasaheb. Kinetics of hydrolysis of B-2-4, dichlorophenoxy ethyl phosphates. Jiwaji University.

6. Jamkhandi, M.M. Analogues of chloramphenicol. Karnatak University.

7. Joseph, Joy. Analytical applications of hydroxamic acid derivatives. University of Calicut.

8. Kiledar, Anil Vasantrao. Mechanism of he hydrolysis of nuclear substituted benzyl orthophosphates. Jiwaji University.

9. Layeek Fazlullah Hussain. Nature of the protein synthesised by rat liver cells in suspension. Osmania University.

10. Mani, N.V. Studies in Isoflavones. M.S. University of Baroda.

11. Mathur, V.N. Tautomeric equilibrium and ketonic and cis-, Trans—enloic forms of Di-and tri-carbonyl compounds in solution. University of Jabalpur.

12. Mittal, Vishva Mohini. Hydrolytic studies of metamethoxy phosphoric esters. Jiwaji University.

13. More, Sunanda. Mechanism of hydrolysis of some halogen derivatives of cresyl esters of phosphoric acid. Jiwaji University.

14. Mulak, Asha. Mechanism of the hydrolysis of some triesters of phosphoric acid. Jiwaji University.

15. Nazir, S.B. Studies in radiation protection. Birla Institute of Technology and Science, Pilani.

16. Nirmala Devi, C.B. Volumetric determination of some organic compounds by oxidimetry with special reference to rivalent copper. University of Jabalpur.

17. Patel, Saroj Gordhanbhai. Studies in phenyl styryl ketones and flavones. M.S. University of Baroda.

18. Sahai, Virendar Mohan. Hydrolysis of bi-phenyl phosphates: A kinetic study. Jiwaji University.

19. Saxena, Rameshwar Nath. Studies in metal complexes. Jiwaji University.

20. Shah, Kirit Kumar Govindlal. Study on prins reaction—synthesis of 1, 3-Dioxane Carboxylic acids an : anisolic resins: Spectral and thermal degradaton behaviour. Sardar Patel University.

21. Sharma, Dinesh Chandra. In vivo relationship of iron with certain metals and the effect of iron deficiency on enzymes. University of Udaipur.

22. Sharma, Shiv Nandan. Studies on the effect of temperature presence of complexing agent and sweeling on ion exchange equilibria in aqueous and partly aqueous acetone. Jiwaji University.

23. Sharma, Shyam Lal. Kinetics and mechanism of oxidation of some organic compounds (some esters of mandelic acid) by vanadium (V). University of Udaipur.

Earth Sciences

1. Deshpande, Shreekrishna Vinayak. Geology of the Wagad Hills, Eastern Kutch with special reference to stratigraphy and structure. M.S. University of Baroda.

2. Rai, K.L. A regional etrologi study of lower gondwana formations in Pench-Kanhan Valley coalfield of Madhya Pradesh with special reference to Barakar Measures (including coal). *Indian School of Mines, Dhanbad.*

3. Sivaji Raju, A. Some studies on theoretical aspects of the tripotential prospecting methods of electrical surveys in Narava Area, Andhra Pradesh. Andhra University.

BIOLOGICAL SCIENCES

Biochemistry

1. Brahminder Singh. Studies on the biological evaluation of Dhaincha seed (Sesbania aculeate Pers). Punjab Agricultural University.

2. Dholakia. Dineshchandra Mahendralal. Arginine metabolism in plant tumor tissue. M.S. University of Baroda.

Microbiology

1. Gandhi, *Rameshchandra Chunilal. Studies on enological* qualities of some Indian grapes. Haryana Agricultural University.

2. Ganju, Piyare Lal. Studies on some Chainia species and their antibiotics. M.S. University of Baroda.

Botany

1. Ahuja, Daulat Ram. Factors affecting sensitivity to ultraviolet-irradiation of blue-green algae. University of Udaipur.

2. Deshmukh, Murlidhar Govindrao. Agronomic studies on leaf protein production-II. Marathawada University.

3. Garg, R.K. Floristic and ecological studies on the deciduous forest of Kewara-Nal (Udaipur), South Rajasthan. University of Udaipur.

4. Khatri, Shantilal. Further contribution to the study of the fossil flora of the Deccan. Indore University.

5. Madan, Vimla. Effects of inhibitors of DNA-synthesis in blue-green algae. University of Udaipur.

6. Ramakrishna Reddy, T. Studies on texicology of aquatic algae in Rajasthan. University of Udaipur.

7. Rana, Bhupendra Chandra. Biological Effects of industrial pollutants on blue-green lagae. University of Udaipur.

8. Sharma, Vasundhara. Pollution tolerance of selected algae. University of Udaipur.

9. Sreerama Murty, D. Genetic analysis of quantitative characters in Sesamum Indicum L. Osmania University.

10. Tripathi, R.C. Variation and evolution in grasses and sedges. University of Udaipur.

11. Tyagi, V.V.S. Studies on cellular differentiation in blue-green algae. University of Udaipur.

Zoology

1. Mane, Uday Harishchandra. Studies on the Biology of marine clam katelysia opima. Marathwada University.

2. Radhakrishnan, N. Histological and histophysiological studies on the normal and regenerating tail of the Scincid lizard Mabuya carinata. M.S. University of Baroda.

3. Shrisunder, Shobha Charles. Nematode parasites of arthropods. Marathwada University.

Agriculture

1. Annapurna Devi, S. Incorporation of opaque-2 gene into Indian maize inbreds and the improvement of seed quality. Osmania University.

2. Balakrishna Pillai, P. Interrelationship between sulphur and iron in the prevention of iron chlorosis in paddy. University of Udaipur.

3. Deole, J.Y. Studies on the sterilization of the pulse beetle Callosobruchus maculatus Fab (Coleoptera: Bruchidae) by chemosterilants. University of Udaipur.

4. Dixit, P.K Inheritance studies of yield and its components in brinjal (Solanum melongena L.) University of Udaipur.

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SOCIAL SCIENCES

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Chitnis, S.B. The teacher-role in the college system. Tata Institute of Social Sciences, Bombay.

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Telugu

Bapuji, Jandhyala Jayakrishna Prasad. The aesthetic dimensions in Srinath's poetry. Andhra University.

History

Joshi, Urmila. Mewar—its relations with Malwa and Gujarat 1364 A.D.—1572 A.D.: A political study. University of Udaipur.

BOOK NOTES

1. Birks, Tony. Building the new universities. Devon, David & Charles (c 1972) 128p.
Offers an analysis of the virtues and shortcomings of designs of each of the seven universities set up in Britain since 1959 and shows the rapid development and planning towards a compact and vertebrate form.

2. Bordia, Anil and others, Ed. Adult education in India : A book of readings. Bombay, Nachiketa (c 1973) x, 532p.
Treats of Adult Education under the following five heads : (a) Historical Perspective; (b) Philosophy and Objective; (c) Adult Literacy; (d) Methods, and (e) Programmes and Agencies.

3. Brown, Richard, Ed. Knowledge, education and cultural change: Papers in the sociology of education. London, Tavistock, 1973, xii, 410p.
Comprises papers presented at the 1970 conference of the British Sociological Association that attempt an assessment of the present state of sociology of education.

4. Bruner, Jerome S. Relevance of education. London, Allen & Unwin, 1970. xvi, 175p.
To be truely relevant to our social needs, the scope of education must be extended towards overcoming the severe handicaps faced by children from impoverished areas. Bruner feels that reforms through minor curriculum revisions are not enough, and programmes that fail to set knowledge within the context of action must be replaced.

5. Churchward, L.G. Soviet intelligentsia : An essay on the social structure and roles of Soviet intellectuals during the 1960s. London, Routledge & Kegan Paul, 1973. xiii, 204p.
Studies the composition and structure of the contemporary Soviet intelligentsia, specially social scientists, and their relationship with the Communist Party.

6. Fuller, R. Buckminster. Education automation : Freeing the scholar to return to his studies. London, Jonathan Cape, 1973. viii, 85p.
Based on Fuller's talk before the planning committee for the new Edwardsville campus of the University of Southern Illinois, 'Education Automation' makes a strong case for the use of electronic aids in teaching and for comprehensive planning of the campuses of the future.

7. Glatter, Ron and Wedell, E.G. Study by correspondence. London, Longman, 1971. xvi, 361p.
Embodies the results of a research project carried out in the Department of Adult Education of the Manchester University that studied the extent of correspondence education undertaken by adults, their objectives and the reasons for their success or failure.

8. Joshi, P.M. Student revolts in India: Story of the pre-independence youth movement. Bombay, Author, 1972. ix, 103p.
Written in 1946, the book records the saga of high spirit and sacrifice for freedoms, peace and progress made by students in the early forties.

9. Lawlor, John, ed. Higher education: Patterns of change in the 1970s. London, Routledge & Kegan Paul, 1972. 155p.
A sequel to 'The New University', it focusses on the changing pattern of tertiary education in the United Kingdom and the emphasis is upon the challenges and opportunities rather than the problems and difficulties of educationists at this level.

10. Richmond, W. Kenneth. Free school. London, Methuen (c 1973) viii, 211p.
Explores the roots of the educational malaise — sociological, historical and psychological—and looks at what could be done and what is being done to free education from its rigid and hierarchical nineteenth-century organization.

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ANDHRA UNIVERSITY
WALTAIR

Application in the prescribed form are invited so as to reach the Registrar Andhra University on or before 20-6-73 for two posts of Assistant Directors, one in Economics and on in Commerce, School of Correspondence courses, in the scale of pay of Rs. 400-40-800-50-950. Each application shall be accompanied by a crossed Indian Postal Order for Rs. 10/- or a Bank receipt remitting the amount in the State Bank of India to the Andhra University General account (Ordinary).

Qualifications

(a) At least a first or high second class Master s Degree of an Indian University or an equivalent qualification of a foreign University in Economic or Commerce.

(b) Ability to write well in the concerned subject and

(c) Some teaching experience.

Requisitions for the prescribed application forms may be made to Sri P. Hanumantha Rao, Deputy Registrar, Andhra University. Waltair, accompanied by a self-addressed and stamped envelope and a State Bank challan or a crossed Indian Postal Order for Rupee one. The University reserves the right to fill or not to fill the posts. Selected candidates will be appointed on temporary basis for a period of one year in the first instance. The cover containing the application should be superscribed as "Application for appointment to the post of Assistant Director in the School of Correspondence Courses".

Sd/- M. GOPALAKRISHNA REDDY,
REGISTRAR

UNIVERSITY OF JAMMU
Notice

Applications on prescribed forms are invited for the following posts to reach the undersigned on or before June 15, 1973 :—

1. One Professor (Rs. 1100-1600), one Reader (Rs. 700-1250) and three Lecturers (Rs. 400-950) in Education;

2. Lecturer in Law (Rs. 400-950).

For full details and prescribed forms, please apply by sending a crossed postal order for Re 1/- in favour of the Registrar, University of Jammu, Jammu, cashable at Jammu post office.

(K. K. GUPTA)
REGISTRAR

ALIGARH MUSLIM UNIVERSITY
ALIGARH

Advertisement No. 2/73-74

Applications are invited on the prescribed form for the following posts :—

1. **Professor of Economics** Scale Rs. 1100-50-1300-60-1600 plus Allowances.

Qualifications (Ordinarily required) : A first or a high second class Master's degree in Economics of an Indian University or equivalent qualification of a foreign University. A research degree of Ph.D. standard or published work of recognised merit. Atleast ten years teaching experience of post-graduate classes and experience of guiding research.

2. **Reader in Pol. Science.** Scale Rs. 700-50-1250 plus allowances.

Qualifications (Ordinarily required): A first or high second class Master's degree in Pol. Science of an Indian University or equivalent foreign qualification. A research degree of a doctorate standard or published work of a high standard and atleast five years' experience of teaching Post-graduate classes and some experience of guiding research.

3. **Reader in Costume Design & Dress Making, Women's Polytechnic** Scale Rs. 700-50-1250 plus allowances.

Qualifications : Atleast a seond class Master's degree in Textile and Clothing or its equivalent with five years' professional/teaching experience.

Or

Atleast a second class Bachelor's degree in Home Science, or its equivalent, with seven years' experience of which two year's in Professional tailoring/custom *designing.*

Note : Lady candidates will be preferred and the period of experience in their case will be relaxable by one year.

4. **Lecturer in Marathi, Department of Hindi.** Scale Rs. 400-40-800-50-950 plus allowances.

Qualifications (Ordinarily required) : A first or high second class M.A. in Marathi.

Desirable : M.A. in Hindi. Some experience of translating Marathi works into Hindi and *vice-versa.* Some experience of teaching.

5. **Associate Lecturer in Hifzane Sehat, A.K. Tibbiya College.** Scale Rs. 300-25-350 plus allowances.

Qualifications : Second class degree or diploma in Unani system of Medicine (BUMS/BUTS/DIMS) or equivalent from any recognised Tibbiya College. Experience of teaching the subject in any recognised Tibbiya College. Knowlege of English, Arabic/Persian.

Desirable : Published work. Post-graduate qualifications.

Prescribed application forms & Instructions may be had from Dy. Registrar by sending self-addressed envelope of 9x4 . Last date for receipt of applications is 16th June, 1973. Incomplete applications and those received late may not be considered.

Higher start may be given for special qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class railway fare only.

(P.V. GEORGE)
REGISTRAR

UNIVERSITY OF GAUHATI
GAUHATI-14
(Assam)

Advertisement No. 9 of 1973

Applications are invited for the post of Professor one each in the Departments of Commerce and Folklore Research in the scale of Rs. 1100-50-1300-60-1600 plus allowances as admissible under the rules and P.F. benefits.

EDUCATIONAL QUALIFICATION (GENERAL)

For the post of Professor in Commerce : The candidates must have, First Class Master's Degree in Commerce or business Administration with Doctorate Degree or Research publication of recognised merit or recognised professional qualification with at least ten years' Post-graduate teaching experience of which not less than four years should be as Reader and ability and experience in guiding and promoting research or of giving professional training.

Or

Second Class Master's Degree and Doctorate Degree in Commerce or Business Administration or recognised professional qualifications with at least ten years Post-graduate teaching experience, of which not less than four years' should be as Reader, and ability and experience in guiding and promoting research or of giving professional training.

For the post of Professor in Folk-lore Research—A recognised and distinguished scholar in the subject of Folklore with Doctor's Degree or equivalent published work.

Continuous research work of merit as evidenced by published papers in standard journals or published work of merit and 10 (ten) years Post-graduate teaching experience or 15 (fifteen) years Honours teaching experience plus experience in guiding, organising and promoting research in the subject.

IN THE CASE OF A CANDIDATE OF EXCEPTIONAL ABILITIES WITH OUTSTANDING RESEARCH CONTRIBUTIONS THE REQUIREMENT OF TEACHING EXPERIENCE MAY BE SUITABLY RELAXED.

Application in TRIPLICATE stating (1) Name in full (in block letters), (2) Father's name, (3) Age on 1-6-73, (4) Present occupation (5) (a) permanent residence and address, (b) Present address (in full), (6) Present salary (if any drawn), (7) Salary expected, (8) Detailed academic career with subject studied including Honours subject) in degree and Post-graduate course from Matriculation/Higher Secondary/High School leaving certificate Examination onwards (9) Details of teaching experience all supported by testimonials accompanied with an application fee of Rs. 5/- (five) by CROSSED POSTAL ORDER drawn in favour of Registrar, Gauhati University payable at Gauhati University Post Office should be sent in an inner sealed cover marked "APPLICATION FOR THE POST OF (To be mention) : ADVERTISEMENT No. 9 OF 1973" enclosed in an outer cover and addressed to Registrar, Gauhati University, Gauhati-14 to reach him **not later than** 10-7-73.

The number of this advertisement and name of the post must be referred to in the application. Those in employment should apply through proper channel or with a no object certificate.

REGISTRAR

UNIVERSITY OF DELHI
DELHI-110007

The University has a Computer Centre which has been functioning for the last several years. In the Centre the Computer system No. 360/44 and No. 1620-2 are installed with all the auxaliaries. The new building for the Centre is nearing completion when the entire system will be shifted to the same. Further equipment to the tune of $75000/- is being procured. The Centre in addition to existiing activities is expected to develop fullfledged academic activities in Computer Science as a distinct discipline. The Courses envisaged for this purpose will be at successive levels of B.Sc. (Hons.) M.Sc. leading eventually to research and Doctorate standard. The immediate task before the centre therefore be to build up a Computer Science Department.

Interested candidates having high academic qualifications, originality in research activities and capacity to organise an academic Department are invited to apply for the post of Director in the Computer Centre, on the prescribe form obtainable from this office. The post is in the scale of pay of Rs. 1100-50-1300-60-1600 and carries benefits of Dearness Allowance, City Compensatory Allowance, House Rent Allowance and retirement benefits as admissible under the rules in force from time to time.

Minimum Qualifications : 1. A scholar of eminence. 2. Independent published work of high standard and experience of teaching Post-Graduate Classes and guiding Research Work for a considerable period.

Desirable : Master's Degree in Electrical Engineering/Physics/Electronics/Communication Engineering/Mathematics/Mathematical Statistics/Operational Research.

At least 5 years experience of working in a Computer system as well as on the development of Computer Programmes which are important either for Natural Sciences or for Social Sciences.

For the purpose of obtaining prescribed form please send a self addressed envelope with stamps worth Rs. 1.25 to cover registration charges. Selected candidates will be required to produce original certificates relating to their age, qualifications, experience etc. before joining the appointment. The last date of receipt of applications is 10th July, 1973.

Note : It wil be open to the University to consider the names of the suitable candidates who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases on the recommendation of the Selection Committee.

Canvassing in any form by or on behalf of the candidate will disqualify.

Candidates called for interview from *outside Delhi will be paid contribution* towards Railway fare as per rules.

K. P. GOVIL, *(REGISTRAR)*

INDIAN INSTITUTE OF TECHNOLOGY, DELHI
HAUZ KHAS, NEW DELHI-29.

Advertisement No. 3/73

Applications are invited for appointment to the following posts :—

INSTRUMENTS DESIGN & DEVELOPMENT CENTRE

Professor : (scale Rs. 1100-50-1300-60-1600).

Field of specialisation : Design development and production of mechanical, optical or electronic instruments, thorough knowledge of modern workshop production technique and industrial design.

Qualification & Experience : First Class Master's Degree/Doctorate Degree in appropriate field with a minimum of 7 years distinguished experience in design and development of Instruments. Teaching/research in Institution of University standard at postgraduate level. Specialised knowledge in one or more specified field with experience in guiding research. Professional design development work of outstanding merit would be preferred.

Desirable : Requisite experience in the design and development of instruments for scientific and educational use.

The Centre is concerned with research, design and development and pilot plant production of instruments required for scientific and educational applications. The work is of an inter-disciplinary nature. It calls for considerable liaison with other departments and industries.

DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

Assistant Professor/Lecturer (scale Rs. 700-50-1250)/(Rs. 400-40-800-50-950).

Qualifications & experience

First Class Master's Degree/Doctorate Degree with a minimum 5/2 years experience in teaching/research in the Institute of University standard. Specialisation in one or more specific field/subject with outstanding teaching/research experience and Doctorate Degree or published work of equivalent standard would be preferred.

Field of specialisation : (i) Industrial/Managerial sociology; sociology of Science/Technology (ii) Industrial Economics; Managerial Economics; Modern Economics Theory; Developmental Economics (iii) Financial Management; Marketing and Advertisement (iv) political Behaviour/Modern Political Analysis (v)—(a) American/British Literature with special reference to Modern Drama/Fiction (b) Applied Linguistics with particular reference to teaching of English as a foreign/second language; Expertise in preparing teaching materials will be considered an additional qualification.

DEPARTMENT OF APPLIED MECHANICS

Assistant Professor (scale Rs. 700-50-1250).

Field of specialisation : Materials Science.

Qualification & Experience : Doctorate Degree in Materials Science/Metallurgy or other related areas. Specialisation in the area of phase transformations, strengthening mechanisms and mechanical properties of materials. 3-5 years of postdoctoral teaching/research experience in the electron microscopic techniques as applied to the above areas.

BIO-MEDICAL ENGINEERING UNIT

Assistant Professor (scale Rs. 700-50-1250)—Temporary).

Qualification & Experience : First Class Master's Degree/Doctorate Degree in any branch of Engineering/Physical Science/Medical Sciences with a minimum of 5 years experience in teaching/research in Institution of University standard. Persons with outstanding teaching/research experience and Doctorate Degree or published work of equal standard would be preferred.

Sr. Scientific Officer Grade I : (scale Rs. 700-50-1250)—(Temporary).

Qualifications & Experience : First Class Master's Degree/Doctorate Degree in any branch of Engineering/Physical Science/Medical Sciences with about 5 years' experience in teaching/research including repair, design, planning, development and production of instruments in an establishment of repute/Institution of University standard. Persons with Doctorate Degree or published work of equal standard would be preferred.

Candidates for both the above posts must have ability and initiative to enter new areas of biomedical instrumentation posthetics and biomedical systems analysis. The work requires coordination of biomedical engineering activities at the theoretical and experimental levels.

Qualifications/experience may be relaxed in case of candidates with specialised knowledge/experience in biomedical engineering. If persons with appropriate qualifications/experience are not *available the appointment may be made* in the post of lecturer/Sr. Scientific Officer Gr. II in the scale of Rs. 400-40-800-50-900.

LIBRARY

Librarian (scale Rs. 1100-50-1300-60-1600).

Qualifications & Experience

(a) First or second Class M.A./M.Sc./M.Com. plus a First or Second Class B. Lib. Sc. or diploma in Library Science, the degree of M.Lib. Sc. being a preferential qualification. A formal degree or diploma in Library Science will not be necessary for a Scholar of a high order in any branch of knowledge.

(b) At least 10 years experience as Librarian or in a responsible professional capacity in a University Library.

(c) Good academic qualifications and research experience (with publications). (Those who have applied in response to Advt. No. 20/72 need not apply again).

GENERAL

1. Candidates selected would be offered position depending upon their academic background and relevant teaching/research/professional experience. Higher initial pay will be admissible to specially qualified and deserving candidates. Outstanding candidates for the position of professor may be fitted in the senior scale *viz.* Rs. 1600-100-1800. The positions of Associate professor in the scale of Rs. 1100-50-1300 filled on contract for a period of 1 to 3 years.

2. Indian candidates abroad, if selected, for appointment are allowed travel grant contribution limited upto a maximum of economy class fare self and family provided he undertakes to serve the Institute for a period of 3 years after joining.

Maximum age limit : Ordinarily 50 years in the case of Professor/Libararian 35 years in the case of Assistant Professor/Sr. Scientific Officer Gr. I and 30 years for lecturer.

ADMINISTRATION

Assistant Resident Engineer (Civil)
Assistant Resident Engineer (Elect).
Assistant Resident Engineer (Air-conditioning).

Scale : Rs. 350-25-500-30-590-EB-830-EB-35-900).

Qualifications & Experience :

Assistant Resident Engineer (Civil) : Graduate in Civil Engineering with a Minimum experience of 3 years or Diploma holder in Civil Engineering with a minimum experience of 8 to 10 years. Candidates should have experience in construction, maintenance and civil works.

Assistant Resident Engineer (Elect.) : Degree in Electrical Engineering with 3 years experience or Diploma in Electrical Engineering with 8 to 10 years experience of which at least 5 years experience should relate to P.W.D., M.E.S. Railways and Electricity Board.

Assistant Resident Engineer (Air Conditioning) : Degree in Mech. Engg. with three years experience or Diploma in Mech. Engineering with 8 to 10 years experience in the field of Air Conditioning/refrigerator in a plant/organisation/firm of repute.

(Candidates who applied for the post of ARE (civil) and ARE (PH) in response to earlier advertisements Nos. 2/72 and 10/72 need not apply for the post of A.R.E. (civil) again.

MAXIMUM AGE LIMIT : 35 years. Post are permanent unless otherwise indicated. Appointees will have option to elect any of two schemes *viz.* Contributory Provident Fund-*cum*-Gratuity or General Provident Fund-*cum*-Pension-*cum*-Gratuity operating at the institute. The posts also carry allowances as per rules, which at present correspond to those admissible to Central Govt. employees. Age of retirement is 60 years. Candidates called for interview will be paid second class railway fare from the place of their duty to Delhi and back by the shortest route.

Application forms may be obtained from the Registrar, Indian Institute of Technology, Hauz Khas, New Delhi-29 either in person or by sending a self addressed envelope at least 10 x 25 cms. (4; x 9;) size bearing postage stamps of the value of 0.20 paise. Candidates from abroad may apply on plain paper giving an account of their academic and professional record, reprints of publications and names of at least two persons well acquainted with their professional work. Candidates selected for appointment will be required to join duty immediately or as soon as possible thereafter.

Last date of receipt of request for applications forms **5th June 1973**. Last date of receipt of completed applications forms together with an I.P.O. for Rs. 7.50 (Rs. 1.87 for SC/ST) for posts with a starting salary of Rs. 400/- and above and Rs. 3/- (Rs. 0.75 for SC/ST) for others: (last date of receipt of applications **12th June 1973** (27th June 1973 in the case of candidates from abroad).

BERHAMPUR UNIVERSITY BERHAMPUR-7.

GANJAM (ORISSA)

No. 2790/Amn/Ge-1-52/73,
Dated the 25 May 73.

ADVERTISEMENT

Applications are invited in the prescribed form in seven copies obtainable from the Office of the undersigned on payment of Rs. 1.50 paise in person or by Bank Draft drawn on State Bank of India, or Money order in favour of the Registrar, Berhampur University, along with a self addressed envelope measuring 22x10 Cms., affixed with postage stamps worth 0.80 paise for the post of PROFESSOR in the Post-Graduate Department of Physics of this University in the scale of pay of Rs. 1100-50-1300 60-1600/- plus usual Dearness allowance as admissible by the University from time to time.

Qualification and Experience

(i) The Candidate shall be a Scholar of eminence.

(ii) Shall possess a first or second class Master's Degree (with at least 48 % marks) in the subject.

(iii) Shall have a Doctorate Degree or published work of equivalent standard.

(iv) Shall be engaged in active Research and shall have experience in guiding research.

(v) Shall have teaching experience in a College or an University Teaching Department for at least 10 (ten) years in the subject of which at least 3 (three) years shall be in Post-Graduate Classes.

The prescribed period of teaching experience will be calculated up to the last date fixed for receipt of applications.

The Applications duly filled in should reach the undersigned on or before 15.7.1973. Applications received after the due date will not be entertained.

Candidates who are in service should apply through proper channel.

NOTE:

CANDIDATES WHO HAVE ALREADY APPLIED IN RESPONSE TO THIS UNIVERSITY ADVERTISEMENT NO. 317/ADMN./BU/73 DATED 31ST JAN. '73 and AND SUBSEQUENT AMENDMENT NO. 2269/ADMN/GE-1-45/72 DATED 12TH MAY '73. NEED NOT APPLY AFRESH, IF THEY SATISFY THE PRESENT QUALIFICATIONS.

Sd/-R.C. Rajguru,
REGISTRAR

UNIVERSITY OF SAUGAR SAGAR

Advertisement No. R. 3/72

Applications on the prescribed form (obtainable from the undersigned) accompanied by a self addressed envelope and a postal order of Rs. 5-00 in each case are invited for the following posts so as to reach the undersigned by *25th June 73*.

1. A Professor of Physics—Temporary.
2. A Professor of Chemistry—Temporary.

The posts carry the scale of pay of Rs. 1100-50-1300-60-1600 plus Dearness Allowance according to rules.

Qualifications

(i) A Doctor's degree and/or high academic attainments with wide recognition for scholarship and original contribution to the subject.

(ii) Published work to their credit

(iii) Extensive experience of conducting and guiding research.

(iv) At least 10 year's experience of teaching post-graduate classes.

(v) A good working knowledge of Hindi both written and spoken.

Specialsation

The candidates for the post of Professor of Physics should be specialists in Electronics and should have experience of teaching and research in the subject.

2. The candidates for the post of Professor of Chemistry should have specialised in Inorganic or Physical Chemistry and have experience of imparting training to post-graduate students in Nuclear Chemistry.

(COL. H.S. CHANDELE)
REGISTRAR

LUCKNOW UNIVERSITY, LUCKNOW

Advertisement No. 11/1973

Applications are invited for the following posts.

Professors in the Grade of Rs. 1100-50-1300-60-1600:

1. One Professor of Philosophy
2. One Professor of Psychology
3. Two Professors of Education
4. One temporary Professor of Political Science.
5. One Professor of Public Finance & Monetary Economics.
6. One temporary Professor of Social Work
7. One Professor of Sociology
8. One Professor of Anthropology
9. One Professor of Arabic
10. One Professor of Chemistry
11. One Professor of Law
12. One Professor of Constitutional and Administrative. Law.

Qualifications

Preferential

High academic distinctions.

READERS IN THE GRADE OF Rs. 700-50-1250 Plus D.A. AS ADMISSIBLE UNDER THE RULES

13. One Reader in English
14. One temporary Reader in Psychology
15. Three Readers in Education
16. One permanent & two temporary Readers in Ancient Indian History & Archaeology
17. Two Readers in Political Science
18. One permanent & one temporary Reader in Economics
19. One Reader in Social Work
20. Two permanent & one temporary Readers in Sociology
21. One Reader in Sanskrit
22. Three Readers in Hindi
23. One Reader in Linguistics in the Department of Hindi
24. One Reader in Physics.
25. Three permanent & one temporary Readers in Chemistry
26. One Reader in Geology
27. Three permanent and one temporary Readers in Zoology
28. One temporary Reader in Mathematics
29. One temporary Reader in Statistics
30. Two Readers in Law
31. Two Readers in Commerce
32. One temporary Reader in Business Administration
33. One temporary Reader in Library Science
34. One temporary Reader in Journalism
35. Two permanent and two temporary Readers in Botany.

Qualifications

Essential

First or high second class Master's degree and Doctorate in the subject concerned with a good academic record and experience of teaching honours/post-graduate classes for not less than five years and published research work of high standard in the subject concerned. The essential degree qualification for the post of Reader in Law will be LL.M. degree.

Preferential

Experience of teaching post-graduate classes and guiding research.

LECTURERS IN THE GRADE OF Rs. 400-40-800-50-950 PLUS D.A. AS ADMISSIBLE UNDER THE RULES

36. Two permanent and one temporary Lecturer in English
37. One Lecturer in German
38. One Lecturer in Chinese
39. One temporary Lecturer in French
40. One Lecturer in Russian
41. One permanent and one temporary Lecturer in Philosophy
42. One Lecturer in Philosophy (Symbolic Logic)
43. One permanent and three temporary Lecturers in Education
44. Two permanent and one temporary Lecturer in Ancient Indian History & Archaeology
45. Two Lecturers in Medieval & Modern Indian History
46. Two permanent & one temporary Lecturer in Political Science
47. Two Lecturers in Public Administration
48. Two temporary Lecturers in Economics
49. One Lecturer in Social Work
50. Three permanent & one temporary Lecturers in Sociology
51. One Lecturer in Arabic
52. One Lecturer in Urdu
53. One Lecturer in Persian
54. One Lecturer in Sanskrit
55. Four Lecturers in Hindi
56. One temporary Lecturer in Military Science
57. One temporary Lecturer in Library Science
58. Two temporary Lecturers in Journalism
59. Seven Lecturers in Physics
60. One permanent & two temporary Lecturers in Chemistry
61. Three permanent & one temporary Lecturers in Botany
62. Two Lecturers in Geology
63. Three permanent & one temporary Lecturers in Zoology
64. Two permanent Lecturers in Mathematics
65. Two Lecturers in Statistics
66. Eleven permanent & eight temporary Lecturers in Law

67. One temporary Lecturer in Law for the post-graduate Diploma Course in Criminology

68. Two Lecturers in Applied Economics in Faculty of Commerce

69. One permanent & One temporary Lecturer in Business Administration.

70. One part-time Lecturer in Sanskrit Proficiency on Rs. 150/- p.m.

71. One Part-time Lecturer in Bengali on Rs. 100/- p.m.

72. One Part-time Lecturer in Marathi on Rs. 100/- p.m.

73. Two Part-time Lecturers in Military Science on Rs. 150/- p.m.

74. One temporary Research Assistant in Education on Rs. 150/- p.m.

75. One Research Assistant in Economics in the grade of Rs. 200-15-350 plus usual D.A.

76. One Research Assistant to the Professor of Zoology, in the grade of Rs. 200-10-310-15-400 plus usual dearness allowance.

77. One Research Fellow in the Department of Psychology in the grade of Rs. 200-15-350 plus usual D.A. 78. One Research Assistant in the Western History in the grade of Rs 300-15-350 plus usual D.A

QUALIFICATIONS

Essential

First or high second class Master's Degree in the subject concerned with a good academic record. For posts in languages, candidates possessing equivalent diploma in the languages concerned are also eligible. For post No. 68 candidates possessing M.A. degree in Economics are also eligible.

Preferential

Doctorate in the subject concerned advanced studies and published work and experience of teching degree/honours post-graduate classes for two years.

GENERAL

For purposes of qualifications required for the above posts, the degrees obtained in a subject taught in a Department which is subsequently constituted into separate Departments, shall be deemed to be degrees in the subject concerned for the newly constituted Departments.

Relaxation in the prescribed qualifications may be made in exceptional circumstances in accordance with the Ordinances. Ability to teach LL.B. classes for the posts in the Faculty of Law and under-graduate classes for all posts through the medium of Hindi essential except for the posts in Languages.

Benefits of Provident Fund available as admissible under the rules on confirmation for permanent posts. Period of probation for permanent post is two years.

It is not necessary to fill all/any of the advertised posts.

Applications on the prescribed form (available on request, accompanied with a self-addressed envelope of size 23x10 cm: free of cost from the office of the Registrar) with recent testimonials, publications etc., should reach the Registrar, Lucknow University, by Thursday, June 28, 1973. The candidates, who are in service must send their applications through the proper channel. Application Forms to outstation candidates will be issued by post upto Thursday, June 21, 1973.

Note :—The candidates, who have applied earlier for any of the posts mentioned in the advt No. 11/1973, are advised to send fresh applications in the prescribed form as the applications received earlier for these posts have been destroyed in the recent fire.

SAMBALPUR UNIVERSITY
SAMBALPUR

Advertisement

No. 2798/TDS. Dated 7-5-1973

Applications in the prescribed form with attested copies of mark-sheets and certificates of all the examinations passed are invited for the following teaching posts of the (A) University Post-Graduate Departments (B) University College of Engineering, Burla (C) Lajpatrai Law College, Sambalpur.

CATEGORY-A

University Post-graduate Departments

I. Names of Posts

Name of the Department	Professor	Reader	Lecturer
Mathematics	—	One	One
Economics	—	One	—
Physics	One	—	One
Biological—Science	—	One	—

II. Essential Qualifications

For Professors

(i)A second class Master's Degree in the subject with at least 48% of marks.

(ii) High Research qualifications, preferably a doctorate;

(iii) Capacity for conducting and guiding research work;

(iv) Teaching experience for at least 10 years in a College or a Univercity with at least five years of experience in Post-Graduate teaching.

For Readers

(i) (a) Mathematics—A second class Master's Degree in Mathematics with at least 48% of marks:

(b) Economics—A second class Master's Degree in Economics; or statistics with Econometrics: or Agricultural Econmics or International Economics or Indian Finance with at least 48% of marks;

(c) Biological—A second class Master's Degree in Botany Sciences with at least 48% of marks.

(ii) Teaching Experience for at least 8 years in a College or University.

(iii) Active research and capacity to guide research.

(iv) Experience in teaching at post-graduate level will be regarded as an additional qualification.

For Lecturers

(i) A second class Master's Degree in the subject with at least 48% of marks.

(ii) Teaching/Research experience will be regarded as an additional qualification.

In exceptional cases the essential qualifications mentioned above may be relaxed.

III. Desirable Qualifications

Specialisation in one or more of the subjects/branches as mentioned under each Post.

(1) *For Reader in Mathematics* : (i) Functional Analysis, (ii) Topology, (iii) Operation Research, (iv) Fluid Dynamics, (f) Control System.

(2) *For Lecturer in Mathematics* : (i) Operation Research, (ii) Econome-

trics, (iii) Statistics, (iv) Functional Analysis.

(3) *For Reader in Economics* : (i) Econometrics and Mathematical Economics, (ii) Agricultural Economics, (iii) Economics of Industry and Labour.

(4) *For Professor of Physics* : (i) Nuclear Physics, (ii) Particle Physics, (iii) Instrumentation, (iv) Electronics (v) Solid State Physics.

(5) *For Lecturer in Physics*: (i) Nuclear Physics, (ii) Solid State Physics (iii) High Energy and Particle Physics.

(6) *Reader in Biological Sciences* : Plant Physiology and Biochemistry.

CATEGORY-B

University College of Engineering

I. Names of Posts

Professor of Civil Engineering—One.
Reader in Civil Engineering—One.
Professor of Mathematics—One.

II. Essential Qualifications

Professor of Civil Engineering :

(i) First class Bachelor's Degree or Post-graduate Degree in Civil Engineering.

(ii) Ten years experience of which five years should be in teaching and/or research.

(iii) Specialisation in one or more of the following fields: City Planning; Hydraulics and Irrigation Engineering; Health Engineering; Structural Engineering; Soil Mechanics and Foundation Engineering; Surveying, Highway Engineering.

Reader in Civil Engineering

(i) First class Bachelor's Degree or post-graduate Degree in Civil Engineering.

(ii) Seven years experience in teaching/Industry/Research

(iii) Specialisation in one or more of the fields mentioned under the post of Professor of Civil Engineering above.

Professor of Mathematics : Same as for Professors for University Post-graduate Department mentioned under category A.

III. Desirable Qualifications

(i) *For Professor/Reader in Civil Engineering* : (a) Experience in guiding research, (b) Corporate membership of recognised professional Institutions, (c) A doctorate degree (d) Research Publications.

(ii) *For Professor of Mathematics* : Specialisation in Elasticity and/or Fluid Mechanics and Dynamics.

CATEGORY-C

Lajpatrai Law College, Sambalpur

I. Names of Posts

Reader—One.
Lecturer : Two.

II. Essential Qualifications

Reader : At least a second class Master's Degree in Law with teaching and/or professional experience of 5 years at the Bar.

or

At least a second class Bachelor's Degree in Law with ten years teaching and/or professional experience at the Bar.

Lecturer : At least a second class Bachelor's Degree in Law with 5 years teaching and/or professional experience at the Bar.

Or

At least a second class Master's Degree in Law.

Scales of Pay

Professors : Rs. 1100-50-1300-60-1600.
Readers : Rs. 700-50-1250.
Lecturers : Rs. 400-40-800-50-950.

Age of Retirement

For all the above posts is 60 (Sixty).

All the posts carry usual dearness allowance as would be sanctioned by the University from time to time.

Candidates for the post of Reader should mention whether they are willing to be considered for the post of Lecturer if required to do so and in that case they should mention the minimum salary acceptable to them.

Seven copies of the application forms will be supplied from the University Office to each candidate in person on cash payment of Rs. 2 (Rupees two) only. Candidates intending to receive forms by post are required to send (a) Crossed Indian Postal Order of Rs. 2 payable to the Finance Officer, Sambalpur University, Sambalpur (b) A self addressed envelope (23 x 10 cm) with postage stamp worth Rs. 2 affixed to it with the words "**Application form for the teaching posts in the Sambalpur University**" superscribed on it. Money Order/Cheque will not be entertained.

The last date of receipt of application (except for Reader in Economics & Prof and Reader in Civil Engineering which is 28th June, 1973) in the office of the University, at University Campus, Burla, Sambalpur (Orissa) is 9th June 1973.

The selected candidates must join within two months from the date of the issue of appointment order. The candidates will be required to appear for an interview at their own expenses before a Selection Committee. Issue of this advertisement does not make it binding on the University to make the appointments.

Suitable persons may be appointed on contract basis on a higher initial start if it is deemed desirable in the interest of the University.

All communications should be addressed to the Registrar by designation only and not by name.

Sd/- B. MISRA
Registrar.

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

BARODA

Notification No. 7

Applications in the prescribed form are invited for the following posts.

Faculty of Arts

1. Professor of Linguistics

Faculty of Commerce

2. Reader in Accounts

Polytechnic

3. Reader and Head of Department of Civil Engineering

Scales

Professor: Rs. 1100-50-1300-60-1600
Reader: Rs. 700-50-1250

Plus D.A., H.R.A., P.F. and Gratuity benefit as per rules.

Prescribed application forms and details of qualifications and experience required will be available from the undersigned on prepayment of Crossed Postal Order of Re. 1/- only.

The applications form should be accompanied by the Crossed Postal Order of Rs. 7.50 and should reach the Registrar on or before the 7th July, 1973.

Candidates if called for interview will have to come at their own expense.

(K.A. AMIN)
REGISTRAR

BERHAMPUR UNIVERSITY BERHAMPUR-7. (GANJAM) ORISSA

No. 1148 Admn./BU/73

Dated the 4th May 1973

Advertisement

Applications are invited for the following teaching posts for the Post-Graduate Departments of this University.

1. Labour and Social Welfare : Professor—One.
2. Economics : Professor—One
3. Mathematics : Professor—One. Reader—One
4. Botany : Lecturer—One
5. Zoology : Lecturer—Two or three.
6. Political Science : Lecturer—Two (Temporary)
7. Chemistry : Reader—One.

Scale of Pay :

(i) Professor Rs. 1100-50-1300-60-1600
(ii) Reader Rs. 700-50-1250
(iii) Lecturer Rs. 400-40-80-50-950

Plus usual Dearness Allowance as admissible by the University from time to time.

Qualification and Experience

Professor

(i) The candidate shall be a Scholar of eminence.

(ii) Shall possess a first or second class Master's Degree (with at least 48% marks) in the subject.

(iii) Shall have a Doctorate Degree or published work of equivalent standard.

(iv) Shall be engaged in active Research and shall have experience in Guiding Research.

(v) Shall have teaching experience in a College or a University Teaching Department for atleast 10 years in the subject of which at least 3 years shall be in Post-graduate Classes.

Note : Applicants for the post of Professor in Labour and Social Welfare shall have a first or second class Master's Degree (with at least 48% marks) in the subjects of either Labour and Social Welfare or Social work or Labour Science or Industrial and Labour Relations or Personnel Management and Labour Welfare.

(2) ***Reader***

(i) The Candidate shall have a first or second Class Master's Degree (with at least 48% marks) in the subject.

(ii) Shall have a Doctorate Degree or published work of equivalent standard.

(iii) Shall have teaching experience in a College or a University Department for atleast 8 years in the subject of which 2 years preferably be in Post-Graduate Classes.

(iv) Capacity to guide Research shall be regarded as an additional qualification.

(3) *Lecturers* :

(i) The candidate shall have a first class or second Class Master's Degree, (with atleast 48% marks) in the subject.

Special Qualification

(i) Applicants for the post of Lecturer in Botany should have specialisation in Cytotaxonomy. Cytogenetics or Taxonomy.

(ii) Applicants for the post of Lecturer in Zoology should have specialization in Cytology, Ecology, Embryology or Physiology.

(iii) Applicants for the post of Lecturer in Political Science should have specialization in the subject of public Administration.

Seven copies of the prescribed application form will be supplied to the Candidates from the Office of the undersigned on payment of Rs. 1.50 paise in person or by bank draft drawn on State Bank of India, Berhampur (Ganjum) in favour of the Registrar, Berhampur University, along with a self addressed envelope measuring 22 x 10 cms., affixed with postage stamps worth 0.80 paise.

No money Order or Postal Order will be entertained for the purpose.

The applications duly filled in alongwith attested true copies of Certificates, testimonials, and Publications etc. should reach the undersigned on or before 15-6-73. Applications received after the due date will not be entertained.

Candidates who are in service should apply through proper channel.

The prescribed period of teaching experience *for the post of Professor and Reader* will be calculated up to the last date of receipt of applications.

Sd/- R. C. RAJGURU,
REGISTRAR.

PANJAB UNIVERSITY (CHANDIGARH)

ADVERTISEMENT No : 5/73

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh, along with a postal order of Rs. 7.50 for posts at Serial no. 1 to 47 and Rs. 5.00 for posts at serial nos. 48 and 49 by June 30, 1973.

Pay Scales

1. Professor—Rs. 1100-50-1300-60-1600
2. Reader/Directress of Physical Education—Rs. 700-50-1250
3. Lecturer/Curator-cum Lecturer/Assistant Directress, Assistant Director Cultural Activities—Rs. 400-40-800-50-950
4. Junior Lecturers—Rs. 350-25-600
5. Instructor/Coaches—Rs. 300-25-600

Allowances as admissible under the University rules. Benefit of Provident Fund on confirmation. Appointment against substantive posts will be on probation for one year.

1. Professor of Theoretical Physics (Nuclear/Particle/Solid State)	1
2. Professor of Journalism	1
3. Readers in History	3
4. Readers in Mathematics/Pure Mathematics	2
5. Readers in Biochemistry	2
(i) Medical Biochemistry (Biochemistry of Reproduction) with specialisation in Structural Chemistry particularly of Hormones.	
(ii) Preparative and Industrial Biochemistry (Biochemical Preparations)	
6. Reader in Microbiology	1
7. Reader in Pharmacology	1
8. Reader in *Zoology* with specialisation in any of the following (temporary)	1
Animal Physiology, Histochemistry, Cytogenetics, Entomology, Systematics.	
9. Readers in Economics (Candidates should be well versed in Macro-Economic Theory and Economics of Growth; competence in Mathematics especially in Linear Algebra and Calculus.	2
10. Readers in Law	2
11. Reader in Physical Education	1
12. Reader in Psychology with specialisation in clinical Pychology or Guidance *and Counselling*	1
13. Reader in Sanskrit preferably with degree/diploma in the highest oriental examination in Sanskrit	1
14. Reader in Sociology with specialisation in urban sociology, social demography or mathematical and statistical analysis in Sociological research	1
15. Directress of Physical Education	1
16. Lecturers in English	5
17. Lecturers in Applied Mathematics	2
18. Lecturer in Mathematics with specialisation/Mathematical Statistics, in Differential Equations and Linear Algebra	1
19. Lecturer in Physics (Theoretical Physics (Nuclear, Particle and Solid State)/Experimental Physics (Ultra-Violet-Specttroscopy. Mass-Spectroscopy, Bubble Chamber and Nuclear Physics).	1
20. Lecturers in Statistics preferably with specialisation in Probability, stochestic processes, inference and Decision Theory	2
21. Lecturers in Economics *(with specialisation in Eco*nomics of Education/Economics of Growth and Development/Economics of Regional Transport/Economics of Industry/Economic Statistics/Monetary Economics Econometrics/Mathematical Economics and Theory of Statistics).	5
22. Lecturers in Anthropology with specialisation in:—	2
(i) Cultural Anthropology/Demography with knowledge of Mathematical and Statistical Analysis.	
(ii) Human Genetics/Prehistoric Archaeology.	
23. Lecturer in Engineering Mathematics	1
24. Lecturers in Biochemistry with specialisation in	2
(i) Plant Biochemistry (Medicinal Plants/Trace Elements)	
(ii) Biochemical Genetics	
25. Lecturer in Chemistry	1
26. Lecturer in Pharmaceutical Chemistry	1
27. Lecturer in Pharmaceutics	1
28. Lecturer in *Zoology*	1
29. Lecturers in Commerce & Business Management	4
30. Lecturer in Educational and Vocational Guidance preferably with Special Diploma in Guidance and Counselling	1
31. Lecturer in French	1
32. Lecturer in Fine Arts	1
33. Lecturer in Geography with thorough training in Quantitative Geography preferably holding Doctoral Degree in one of the branches in Applied Geography and having made ample use of Quantitative methods of doctoral work	1
34. Lecturer in Gandhian Philosophy	1
35. Lecturers in Hindi	2
36. Lecturer in Indian Theatre	1

37. Lecturers in Psychology	2
38. Lecturer in Political Science with specialisation in Political Analysis including Recent Theory & Method in Political Science	1
39. Lecturer in Public Administration	1
40. Lecturer in Russian	1
41. Lecturer in Microbiology	1
42. Curator-cum-Lecturer in Microbiology	1
43. Assistant Directress in Physical Education	1
44. Assistant Director Cultural Activities	1
45. Lecturer in Library Science	1
46. Junior Lecturer in English	1
47. Junior Lecturers in Political Science	2
48. Instructor in Rhythmics	1
49. N.I.S. trained Coaches	4

(i) Swimming—2 (one for men students and one for Women students).

(ii) Badminton — 1 (for women students).

(iii) Cricket—1

Qualifications

I. Professors

(1) Professor of Theoretical Physics

(i) A first or second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the subject with bright academic record;

(ii) Either a research degree of doctoral standard or published research work of high standard in journals of repute.

(iii) About ten years' experience of Research or teaching post-graduate classes at a University;

(iv) Experience of guiding research at both M.Sc. and Ph.D. levels.

(v) Knowledge of foreign language other than English desirable.

(2) Professor of Journalism

Candidates should have a brilliant academic record and professional training in Journalism preferably with a Master's/Doctoral degree in Journalism. Qualifications may however, be relaxed in the case of persons who have held responsible positions in newspapers or news-agencies of national or international repute.

Knowledge of a foreign language other than English is desirable.

II. Readers

Essential

(i) A first or second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the relevant subject with bright academic record. In the case of Reader in Physical Education, the Master's degree should be of two years integrated course.

(ii) Either a research degree of doctoral standard or published research work of a high standard in journals of repute.

(iii) About five years experience of teaching post-graduate classes at a University or College level.

(iv) Experience of guiding research both at post-graduate and post-doctoral levels.

Desirable

(v) Knowledge of a foreign language other than English.

NOTE: For the posts of Readers in Biochemistry, research experience in Pharmacological Biochemistry and Preparative Organic & Microbial Biochemistry and teaching experience of Post-graduate classes in a Medical Institute/Industrial Laboratory will be additional qualification.

III. Directress of Physical Education

(i) At least second class Master's Degree in Physical Education (two years' integrated course), or an equivalent Degree from a foreign University.

(ii) Five year' experience of teaching Physical Education/organizing Physical Education programmes in a college/University or in an administrative post.

Outstanding sports women having experience in organisation and administration of Physical Education/Sports shall be preferred.

IV. Lecturers /Curator-cum-Lecturer/ Junior Lecturers

Essential

(i) A first or second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the relevant subject.

Desirable

(ii) Published research work; and

(iii) Doctoral Degree and teaching experience to post-graduate classes.

NOTE: 1. Candidates for the posts of Lecturers in Biochemistry should have a sound knowledge of modern Biochemical theory, practical techniques and instrumentation.

2. Candidates for the post of Lecturers in Engineering Mathematics should hold first or second class Master's degree in Pure or Applied Mathematics, with courses in some of the following branches:—

(i) Fluid Mechanics
(ii) Hvdromagnetics
(ii') Numberical Analysis
(iv) Statistics

3. Qualifications and fields of sepecialisation for Lecturers in Commerce and Business Management.

(i) Master of Business Administration with specialisation in Marketing Management.

(ii) LL.M. with specialisation in Business Law including Taxation and Labour Legislation.

(iii) & iv). Master of Commerce with specialisation in Financial and Cost Accounting.

OR

Bachelors' degree and Associate of the Institute of Chartered Accountants of India or England. Preference will be given to those who have either passed the Management Accountancy examination of the Institute or have passed the final examination of the Institute of Cost and Works Accountants,' India or England.

4. Candidates for the post of Lecturer in French should hold the following qualifications:—

Essential

1. Professorat of Alliance francaise.

OR

2. Diploma Superieur d'Etudes francaises Modernes of Alliance francaises.

OR

3. First or Second class M.A. in French from an Indian or foreign University together with Diploma in French from Alliance francaise or from Sarbonne. the University of Paris.

Desirable

1. Training in using Audio-Visual aids in teaching French.

2. Diploma in Phonetics.

5. Candidates for the post of Lecturer in Gandhian Philosophy should hold first or high second class Master's Degree in Political Science, Economics, History, Philosophy or Public Administration. They should be able to teach Gandhian Thought specially Economic Thought Mahatma Gandhi or Theory of Non-Violence. Certificate/Diploma in Gandhian Philosophy will be an additional qualification.

6. Candidates for the post of Lecturer in Indian Theatre should hold the following qualifications:—

(i) Three year Diploma Course of the National School of Drama, New Delhi

OR

A diploma from any known foreign university or renowned theatre training centre, with specialisation in scenic design and stage craft.

(ii) Three years' experience as a stage designer and expertise in set construction, lighting and scenic design with experience as stage designer and technical incharge of at least five productions in various styles.

7. For the post of Lecturer in Russian, candidates should possess the following qualifications:—

Essential

(i) Atleast second class Master's degree in Russian Language & Literature

OR

(ii) At least 2nd class Master's degree n Science/Humanities with Advanced Diploma in Russian/B.A. (Hons) in Russian or B.A. with Russian as an Elective subject (1st Class).

V. Assistant Directress, Physical Education

(i) First or second class Master's Degree in Physical Education (Two-Year Integrated course) of an Indian University or an equivalent Degree from a foreign University.

(ii) Five years' experience as Directress of Physical Education in a College/University Sports Organisation of repute.

VI. Assistant Director Cultural Activities

1. Master's degree in Arts or Science with five years' experience of organising student activities in educational institutions.

2. Experience of participation/production of plays, musical concerts, dance performances and/or folkarts.

3. Diploma in stage setting, direction desirable.

VII. Instructor in Rhythmics

(i) B.A/B.Sc of the Panjab University or any other recognised University.

(ii) Diploma/Certificate in dancing.

(iii) Proficiency in playing on one or more musical instruments.

Diploma/Degree in Physical Education will be preferred.

Academic qualifications may be relaxed in case of candidates otherwise found suitable.

VIII. N.I.S. Trained Coaches

(i) B.A/B.Sc. of the Panjab University or any other recognised University.

(ii) N.I.S. Certificate in the pertinent game/sport.

(iii) Teaching experience and/or Diploma/Degree in Physical Education will be preferred.

Persons already in service should route the applications through their employers.

Persons appointed against these posts may be posed/transferred to any of the colleges or institutions administered and run by the University.

Application forms can be obtained from the Office of the Finance & Development Officer, Panjab University, Chandigarh, by making a written request accompanied with self-addressed stamped envelope of 23 x10 cms.

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY
POWAI, BOMBAY 400076

RESEARCH SCHOLARSHIPS/FELLOWSHIPS IN SCIENCES, SOCIAL SCIENCES AND HUMANITIES

1973-74 Session

Advertisement No. 745

Research Scholarships of the value of Rs. 250/- p.m. and Postdoctoral Fellowships of the value of Rs. 500/- p.m. are available in Chemistry, Geology, Humanities and Social Sciences, Mathematics and Physics.

Excellent facilities exist at the Institute for carrying out research in many of the modern disciplines in the respective departments. Application forms may be obtained from the Deputy Registrar (Academic) on request accompanied by a self-addressed stamped (50 paise stamp) envelope of size 28x3 cms. superscribed "Application for Research Scholarship/Fellowship in——————————. Completed
(Branch of Science)
application forms accompanied by a crossed postal order for Rs. 5/- payable to the Indian Institute of Technology, Bombay must reach the Deputy Registrar by 20th June 1973.

IN THE CASE OF CANDIDATES BELONGING TO SCHEDULED CASTE/TRIBE, SPECIAL CONSIDERATION WILL BE SHOWN IN THE MATTER OF ADMISSION.

Candidates have to appear for interview at the Institute before final selection. Candidates called for interview will be paid a single III class railway fare by the shortest route from the place of residence to the Institute and back.

MINIMUM QUALIFICATIONS

A first class or high second class Master's degree for resecarh scholarship and Ph.D. degree for post-doctoral fellowship in the appropriate subjects.

Candidates who have appeared for the Master's degree examination and are awaiting results are also eligible to apply.

The areas of specialisation are given below:

I. DEPARTMENT OF CHEMISTRY

1. Solid State Chemistry and Physics; 2. Crystal and Molecular Structure; 3. Chemical and Mossbauer Spectroscopy; 4. Electrochemistry; 5. Thermodynamics; 6. Coordination Chemistry; 7. Analytical Chemistry; 8. Chemistry of Natural Products; 9. Synthetic Organic Chemistry.

II. GEOLOGY

(Deptt. of Civil Engg.) 1. Petrology and Mineralogy; 2. Economic Geology; 3. Engineering Gelogy.

III. DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES

(A first class or high second class Bachelor's and Master's degree for Research Scholarship and PhD. degree for Postdoctoral Fellowship in the appropriate subjects).

1. English; 2. Economics; 3. Philosophy; 4. Behavioral Sciences (Psychology, Anthropology, Sociology, Management Science). A candidate is required to submit a typed note of about 600 words outlining the proposed theme of research along with the application.

IV. DEPARTMENT OF MATHEMATICS

1. Functional Analysis and Approximation Theory, 2. Complex Analysis, 3. Numrical Analysis, 4. Fluid Mechanics, 5. Elasticity, 6. Statistics.

V. DEPARTMENT OF PHYSICS

1. Solid State Physics, Experimental and Theoretical; 2. Nuclear Physics, Experimental and Theoretical; 3. Atomic and Molecular Structure and Spectroscopy; 4. X-ray Spectroscopy and Crystallography.

Postal requests for application form, received without a self-addressed, adequately stamped and duly superscribed envelope of the appropriate size, or received after 13th June 1973, will not be entertained.

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

Advertisement No. 746.

RESEARCH SCHOLARSHIP/FELLOWSHIPS IN ENGG./ TECH. 1973-74 SESSION

Research Scholarships in Engineering/Technology of the value of Rs. 250/-p.m., Research Fellowships of the value of Rs. 400/- p.m. and postdoctoral Fellowships of the value of Rs. 500/- p.m. are available in the following Departments of the Institute. Details of the research facilities and programmes of the various Departments will be available from Deputy Registrar (Academic).

Application forms may be obtained from the Deputy Registrar (Academic) on request accompanied by self-addressed stamped (50 paise) envelope of the size 28×13 m. superscribed "APPLICATION FOR RESEARCH SCHOLARSHIP/ FELLOWSHIP IN———————————————

(Branch of Engineering)

Completed application forms accompanied by cross postal order for Rs. 5/- payable to the Indian Institute of Technology, Bombay, must reach him at the Institute by 20th June, 1973.

In the case of candidates belonging to Scheduled Castes Scheduled Tribes, special consideration will be shown in the matter of admission.

Candidates called for interview will be paid a single III class railway fare by the shortest route from the place of residence to the Institute and back.

The areas of research in which facilities are available and the minimum qualifications required are given below:—

1. AERONAUTICAL ENGINEERING

(1) AERODYNAMICS

- (a) Boundary Layers on Curved Surfaces
- (b) Separated Flows
- (c) Jet Interaction with Bodies.

(2) PROPULSION

- (a) Aerothermodynamics
- (b) Performance of Turbomachines
- (c) Engine Cooling and Heat-transfer Studies
- (d) Combustion—Flame—Stabilization and Fuel Additives
- (e) Vibrations of High Speed Rotors

(3) AIRCRAFT STRUCTURES

- (a) Finite Element Methods
- (b) Composites
- (c) Structural Dynamics

(4) AIRCRAFT SYSTEMS

2. CHEMICAL ENGINEERING

- (1) Automation in Chemical Industries
- (2) Inorganic Process Industries
- (3) Organic Process Industries
- (4) Technology of Fuels
- (5) Technology of Silicates
- (6) Unit Operations
- (7) Optimization and Simulation.

3. CIVIL ENGINEERING

(a) Hydraulic Engg.: 1. Theoretical Fluid Mechnics, (2) Ground Water Flow, (3) Free Surface Flow.

(b) Soil Engg. : (1) Basic Soil Mechanics. (2) Soil Stabilization, (3) Foundation Interaction Problems and Earth Dam Problems, (4) Dynamics of Soil Media. (5) Mechanics of Swelling Soil Media. (6) Rock Mechanics.

(c) Structural Engineering: (1) Materials of construction, (2) Static and Dynamic problems in frame and grid structures (buildings, bridges etc.) and thin walled structures (plates and shells used in pressure vessels and other complex structures) (3) Systems analysis and probabilistic design, (4) Optimization (5) Numerical methods and computer programming, (6) Biomechanics.

4. Electrical Engineering (Including Electronics):

1. Rotating Machines 2. Power Systems protection 3. Control Systems 4. Instrumentation (integrated circuits) 5. Solid State Microwave Devices and Integrated circuits 6. Microwave Engineering, 7. Communication Theory and Systems, 8. Thin Film Technology 9. Computer Systems.

5. Mechanical Engineering

1. Machine Tool and Metal Cutting; 2. I.C. Engineering, 3. Fluid Mechanics and Fluid Machinery, 4. Thermodynamics and Heat Transfer, 5. Refrigeration and Air Conditioning, 6 Metal Casting and Metal Forming.

6. Metallurgical Engineering

1. Phase Transformations, 2. Fracture Mechanics 3. Diffusion and Sintering. 4. Thermodynamics of Metallurgical processes, 5. Extraction of ferrous and non-ferrous metals, 6. Raw materials preparation.

Minimum Qualifications

(i) A good Bachelor's degree in appropriate branch of Engineering for Research Scholarship of Rs. 250/- p.m. For research scholarships in Department of Chemical, Electrical or Metallurgical Engineering, candidates with a good Master's degree in Mathematics, Physics, Chemistry will also be eligible. Candidates with a Master's degree in Chemical Technology are also eligible for research scholarships in some fields in Chemical Engineering.

All Research Scholars holding Bachelor's degree in Engineering and starting with Rs. 250/- p.m. will be eligible for consideration for Research scholarship on Rs. 400/- p.m. after two years' Study/Research.

(ii) A good Master's degree in appropriate branch of Engineering/Technology for Research Fellowship of Rs. 400/- p.m.

(iii) A Ph.D. degree in appropriate branch of Engineering/ Technology for Post-doctoral Fellowship of Rs. 500/- p.m.

Candidates who have appeared at a qualifying examination and are awaiting results are also eligible to apply.

Postal requests for application form received without a self-addressed, adequately stamped and duly superscribed envelope of the appropriate size, or received after 13th June 1973, will not be entertained.

INDUSTRIAL DESIGN CENTRE
INDIAN INSTITUTE OF TECHNOLOGY
POWAI, BOMBAY-400076

Advertisement No. 750

ADMISSION TO POSTGRADUATE DIPLOMA COURSE IN INDUSTRIAL DESIGN (DIIT) 1973-74 SESSION COMMENCING FROM SEPTEMBER 1973.

Applications in the prescribed forms are invited for admission to the above course. The course is of fifteen months' duration and the candidates will be required to stay in the institute's hostels. Entrance requirements: A degree in Engineering or Architecture with aptitude for art.

Admission is restricted to 10 candidates only. scholarship of Rs. 250/- p.m. is payable to all the candidates. Industrial sponsorship may be arranged in deserving cases for subsequent employment.

Application form can be had from the Deputy Registrar (Academic). Indian Institute of Technology, Powai, Bombay-400076, by enclosing a self-addressed stamped (35 paise) envelope of size 29x10 cms and superscribed 'Admission to Postgraduate Diploma course in Industrial Design'. Completed application with I.P.O. of Rs. 5/- must reach the Institute by 30th June 1973.

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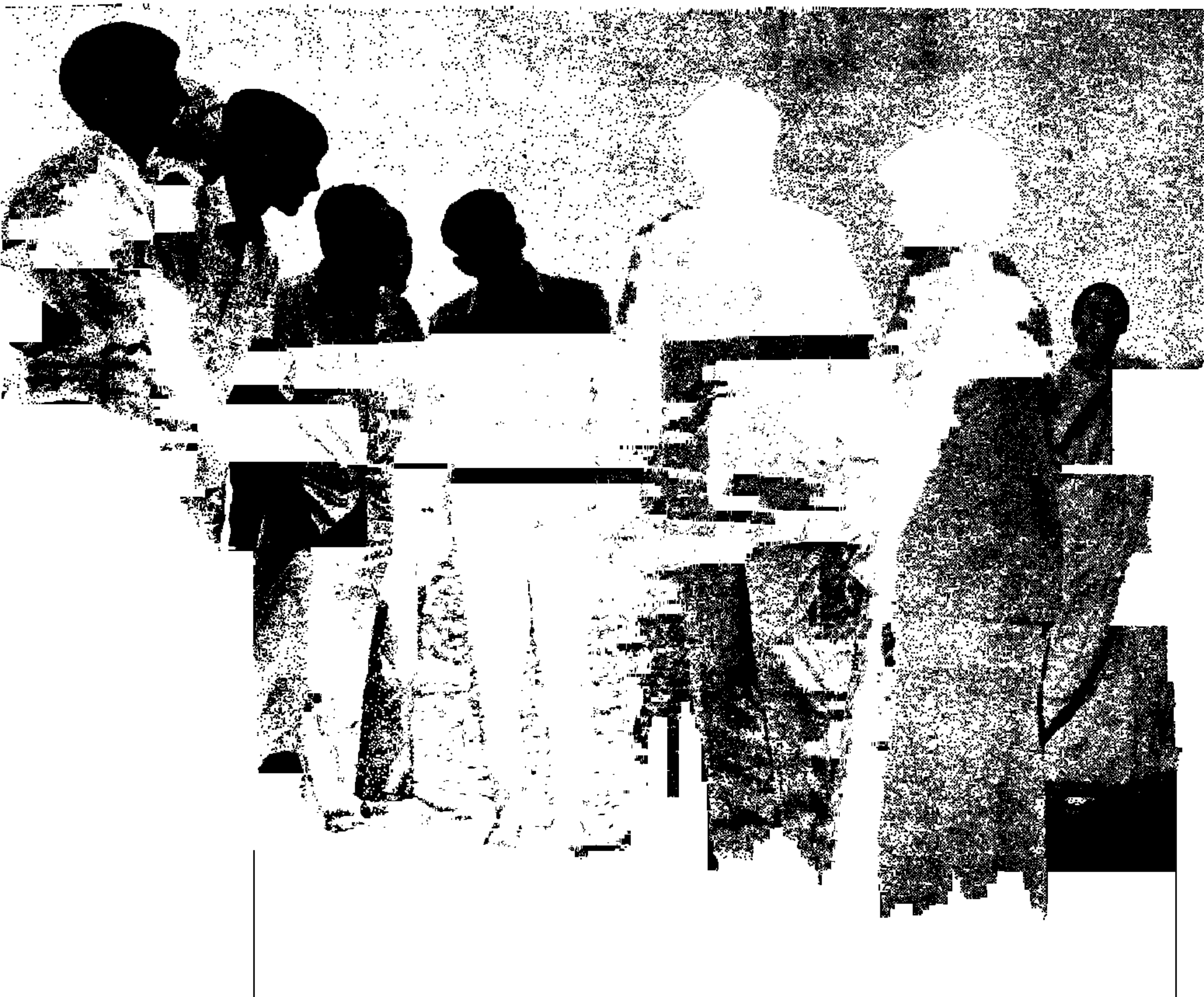
UNIVERSITY NEWS



Attention

COLLEGE / UNIVERSITY STUDENTS

ESSAY COMPETITION

Essays in English or Hindi are invited from bonafide students of any college/university in India for the **Second All-India Essay Competition** under the **Basic Literature Scheme.**

SUBJECT : The essays should deal with **Panchayati Raj Bodies as Democratic Institutions in the Eyes of the Younger Generation.**

LENGTH : The essay written on one side of the paper, preferably typed, should not exceed 2,000 words.

HOW TO ENTER : Entries, bearing full postal address of the competitor in capital letters, should be submitted in duplicate along with a 'bonafide student' certificate from the head of the institution where the competitor is studying or, alternatively, an affidavit to that effect.

Those interested are advised to procure a copy of the rules of the competition from and submit entries to :

Director (Basic Literature),
Ministry of Agriculture,
Government of India,
(Departments of Community
Development & Cooperation),
Krishi Bhavan, New Delhi-110001.

LAST DATE FOR RECEIPT OF ENTRIES : 30.7.1973

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in each language

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UNIVERSITY NEWS

A Monthly Chronicle of Higher Education

Vol. XI No. 7 July 1973

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Opinions expressed in the articles and reviews are individual and do not necessarily reflect the policies of the Board.

EDITOR : ANJNI KUMAR

MEDICAL RESEARCH

The Indian Council of Medical Research has a vital role in the medical education of the country. It not only assists the medical faculties in their research projects but also helps them in the clinical trial of new drugs. It has deep involvement in the various community health projects and the family planning campaign of the Ministry of Health. The recent slashing down of its budget has caused a major concern to the medical profession. No new research projects can be taken up in the coming year. And with great difficulty the old projects would be allowed to continue. But the biggest victim would be the technicians and research staff employed on the various schemes throughout the country. Delhi alone would be rendering 1000 people out of employment from September and will add considerably to the prevalent unemployment problems for highly trained and skilled workers.

The postgraduate students in the universities will be the next sufferer. The ICMR fellowships have always been a big source of financial assistance to them. In the absence of new awards this year, the postgraduates would be hard hit in the days of soaring prices and rising cost of living on the campuses. Delhi University's plan to put the pills to trial would be put in abeyance. Seminars and workshops planned during the year have to be postponed. The newly started Conference of the young medical scientists has to be abandoned. The publication of various technical reports would be delayed. Projects relating to communicable diseases and malnutrition would be kept in cold storage. The retardation of research tempo in these critical areas will definitely affect the public health programmes.

The argument of the Ministry of Health that the proposed budget cut is a general one and is not specifically focused towards ICMR does not hold much ground. Research in any faculty is vital for the development of higher education but in the field of medicine it assumes greater importance as it is intimately linked with the problems of the community and the health of the nation. The proposed research cut in the budget of ICMR at this critical period when the postgraduate medical education and medical research needs rapid expansion is highly disturbing and deploring.

Engineering Education

A. Ramachandran

THE primary objective of developing countries is to achieve, within a measurable period of time, economic progress so as to raise its standard of living. This implies the transformation from a traditional economy to an economy based on Science and Technology. A modern technological society cannot be sustained without trained personnel who are innovative, concerned with socio-economic impact of the technologies and possess an inquisitive mind. One of the important functions of educational institutions is to build up a reservoir of such intellectual capital. A first-rate institution should engage itself in the creation, transmission and utilization of knowledge. In addition to teaching, it should establish a meaningful relationship with industry.

After World War II, the need for developing higher technological education was keenly felt, and, as part of the post-war development plan, the All India Council for Technical Education (AICTE) was set up to prepare plans for expansion in the field of Technical Education. The All India Council for Technical Education established four Regional Committees to assess the needs for technically-trained people and develop facilities in various branches of Engineering at the undergraduate and diploma levels. A Board of Post-Graduate Studies and Research in Engineering was also set up by the AICTE to deal with development of facilities at the post-graduate level. A Board of Technician Training is being set up by the AICTE.

The institutional framework for technical education is provided by the five Institutes of Technology, 138 Engineering Colleges at the degree level and 330 Polytechnics at the diploma level. The annual intake capacity in these institutions is of the order of 25,000 at the graduate level and about 48,000 at the diploma level. Some of the other specialised institutions that have been set up are the two Institutes of Management at Ahmedabad and Calcutta, the National Institute for Training in Industrial Engineering (NITIE) at Bombay, the National Institute of Foundry and Forge Technology and the School of Town Planning and Architecture. In order to train Teachers for Polytechnics, four Regional Technical Teachers Training Institutes have been established.

In terms of financial investment, the technical education system represents an investment of over Rs. 1000.00 million in buildings and equipment. About 20,000 teachers—a good proportion of them with post-graduate and research qualifications form the Faculty of these institutions. The total enrolment at present is of the order of 1,75,000 students with an annual outturn of 18,000 graduates and 22,000 diploma holders in various engineering disciplines.

Post-Graduate Study & Research: During the last decade, priority was given to the development of postgraduate education and research in Engineering. There are, at present, 65 institutions offering facilities for post-graduate studies in a number of specialised fields. Facilities have been created for an annual intake of about 4,000 students, which is approximately 20% of the total number of graduates in Engineering and Technology, each year. The development of the Indian Institutes of Technology was a significant step to promote advanced Engineering Education and Research. The present annual output is 200 Doctorates and 1,600 with the Master's degree in Engineering. An essential component of the post-graduate program is Project Work, which may be research-oriented to initiate students in the methodology of research or design-oriented to equip them with an understanding of design procedures and engineering synthesis. The utilization of Master's Degree holders in the different sectors of technological activity is as follows:

Industry	...	43%
Research	...	17%
Teaching	...	26%
Further Studies	...	14%

With Industry increasingly depending upon indigenous technology, the proportion entering Industry and Research will increase in the coming decade.

Manpower Planning: The importance of manpower planning in the field of technical education need hardly be overstressed. The accelerating pace of technological change is an important phenomena of our times. Demand for technical personnel in newer areas will continuously emerge, which should be taken into account in future plans of technical education. In developing countries, insufficient attention has been paid in organising programmes to meet the technological needs of agricultural production, agro-based industries, small industries and handicrafts. Innovations in these areas are as important as in organised medium and large scale industries for national development.

Continuing Education: The professional person is expected to benefit and be useful to society for a period of 30 to 40 years after graduation. With the rapid advances in technology and the rate of change in technology being more significant, society is faced with the problem of obsolescence not only in machines and materials, but also of the human element in the chain concept of Science, Technology and Production. Continuing Education for practising engineers has been organised at some institutions. These courses are tailored to the needs and motivations of Engineers in Industry. The nature of the courses has necessitated development of cyclo-

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styled notes and data sheets for utilisation by the participants. The duration of these programs vary from two to four weeks. Though these courses are not part of any post-graduate programs, satisfactory completion of the course enables the participant to receive an official certificate from the Institute. Many programs have been organised by the Institutes of Technology in fields like Metrology, Particle Technology, High Way Bridges, Design and Construction of Concrete Shells aud Folded Plates, Foundation Engineering, Production Management, etc.

Faculty Development: , During the Fourth Plan period 1969-74, the AICTE laid an increasing emphasis on improving the quality of Engineering Education in our institutions. With this in view, many programs have been initiated during the Fourth Five Year Plan commencing from 1969. Faculty Development has rightly earned a pride of place among them. Young engineering college teachers have been enabled to improve their competences—

- (a) by attending Summer Schools in specialised fields:
- (b) fellowships for full-time studies and research leading to Master's and Doctor's degree in selected technical institutions;
- (c) fellowships for young teachers for a program of residency in Industries, to enable them to acquire a feel for industrial problems.

Curriculum Development: Curriculum Development Centers have been established in all engineering disciplines at six institutions in the country. Faculty members from various engineering institutions and engineers from industry have met periodically during the last two years to up-date the curriculum, develop new resource materials for teaching/learning laboratory equipment development in various engineering disciplines, teaching aids, case studies of real design projects, effective teaching and evaluation methods.

Innovative Programs: A few institutions are experimenting with the Sandwich or Co-operative Programs of education, both at the degree and at the diploma level. Industry-oriented programs have been organised at the post-graduate level at several Regional Engineering Colleges with assistance from UNESCO. These innovative programs are being watched with interest by other educational institutions in the country. The impact of Computers in Engineering Education clearly points out that the under-graduate engineer of the future must be able to cope with problems in systems terms. In contrast to the current practice, challenging and exciting areas for exploitation of the Computer in the solution to the engineering problems are in the fields of Design. 'Creativity' in engineering is much sought after at the present time. Creative design is fostered by impressing on the engineering student that every man made device, product, system and process represents an imperfect solution to a given problem at the point of time. In many institutions, Project Work is designed in the final semester of undergraduate program to enable the students to gain confiedrce in tackling live engineering problems.

The most common engineering criterion is performances cost ratio. Economic justification is too seldom discussed in engineering colleges in a meaningful way. Decision making in the economic and technical context must be brought into the curriculam.

Automated assembly lines impose drastic changes in requirements for education in production engineering and in engineering design. The interaction of design and production and to treat the former as part of systems engineering must be realised.

Younger engineering teachers lack awareness of manufacturing, marketing, product development, financing and other factors that influence engineering decisions in practice. Preparation for advanced degrees or teaching is so exacting that they have little opportunity for professional experience. Residencies in engineering practice should be designed to provide clinical practice for engineering faculty members. There is a necessity for evolving a programme to prepare "professional engineers" at the graduate level, leading to a Doctor of Engineering degree for innovative design and development work.

Multi-Disciplinary Approach: The graduate starting his career in an Industry must have the courage and ability to switch from one type of problem to another and must also be able to work in team with colleagues of different backgrounds and disciplines, while retaining his individual outlook and approach. Technological innovation is effective only when research development and production are closely linked to form a single system. A single system would involve a multiplicity of engineering disciplines, social sciences, commercial and managerial expertise. A multi-disciplinary approach is necessary in industry, agricultured medicine as also in University teaching. Typical project problems that could be assigned to teams of undergraduate and post-graduate students of different disciplines should be in an area of practical interest in the environment of the institution affecting the life of the community around. They are :—

1. City traffic flow.
2. City Water supply.
3. Urban transportation problems.
4. Air and Water Pollution.
5. Storage and Distribution of grains.
6. Improved agricultural implements.
7. Inland water transportation.
8. Urban waste disposal and sewage systems.
9. Urban development.
10. Low cost housing in rural areas, etc.

These problems offer a challenge as well as the opportunity to gather data, analyse information in a scientific way, formulate solutions and choose an optimum one from several possible alternatives. Different disciplines are involved and various aspects of the problem need careful study. The team members will develop an integrated view and present within a prescribed time schedule, a report on their investigation. The inter-disciplinary approach that underlies the scheme is perhaps its most valuable contribution to the educative process encompassing both the faculty and the students.

Industry-Institution Relations: Industry, as a major beneficiary of the products of Universities, has always had an important stake in the education process. The young engineers from the University determine the shape of the Industry and indeed of the Society tomorrow. Various steps have been taken to bring Industry and Engineering Institutions together—for instance, residencies in Industries for Faculty Members to enable choice of projects for research more towards well-defined goals. The stumulus of sound academic thinking is good for the industry. The discipline of hard school of practice is good for the faculty in the Universities. The close working together of industry and academicians is essential.Some of the steps that have been taken to achieve this symbiosis is listed:

(a) co-operative under-graduate and post-graduate programs:

(b) faculty consulting for industry both at senior and junior levels;

(c) appointment of visiting industrial professors who have strong academic learnings. They are permitted to direct design projects and serve on curriculum committees. This is analogous to the clinical profoessor of medicine in medical colleges;

(d) use of visiting committees for constructive interaction:

(e) continuing education for engineering working in industry;

(f) engineers from industry and research laboratories are enabled to undergo part-time course of work leading to post-graduate conferments.

Professional Society: Indian Society for Technical Education

The Indian Society for Technical Education (ISTE) was incorporated in 1968 as successor organization to the Association of Principals of Technical Institutions. The ISTE is organised in four zones, each functioning under a Zonal Council, representing the four administrative zones of the country, viz., North, South, East and West. Besides the Zonal Councils, Sections and Branches have been constituted within each zone. Sections are formed to operate in each State and Branches in metropolitan areas with individual and corporate members.

The National Council for Science Education (NCSE) of India has sponsored the publication of the Journal of Technical Education. This Journal is made available to all members of ISTE and serves as a medium among teachers and others interested in technical education with the following aims and objectives:

(a) to express freely their ideas about engineering curricula;

(b) to discuss pedagogical aspects;

(c) to disseminate new laboratory aids and other educational aids;

(d) to publish critical reviews of text-books and journals;

(e) to announce various teacher-oriented activities like seminars, courses, workshops etc.

Together, Institutions and Industry complement each other's work by agreeing upon common objectives, sharing skills, facilities and intellectual resources; and most important of all, establish and maintain a continuing dialogue responsive to the ever-present force of change. The challenge of the '70s can be met only by a new kind and a new style of leadership in our Technical Institutions as the Engeineers' professional responsibilities have never been so central to Society as they are today. The Engineer has the capacity and motivation to use and shape technology as a powerful instrument for enhancing the quality of life and for helping to solve societal problems of the time. No other kind of professional person occupies a position of such social strategic responsibilty and opportunity for important public service. Educating tomorrow's Engineers, who will have to be useful to the society for the next three decades of their professional career, should be in such a way that they could ride the galloping horses of change, the will to innovate and the entrepreneurial spirit to modernise the old and to emerge as leaders in advancing the economy and welfare of the Nation.

INDIAN SCHOOL OF MINES
DHANBAD 826004

Direct Admission Notice

A limited number of seats in the first year of the 5 year Integrated Course leading to the Degrees of Bachelor of Science in (1) Mining Engineering and (2) Petroleum Engineering and Degrees of Master of Science in (1) Applied Geology and (2) Applied Geophysics at the Indian School of Mines, Dhanbad, for the session 1973-74 are reserved for rankholders of the following examinations conducted by the recognised Universities/Boards in 1973.

Pre-University/Indian School Certificate/Higher Secondary with Chemistry, Mathematics, Physics and English.

Applications are invited in the prescribed form for these reserved seats. Only candidates who have secured a position *within the first thirty ranks in the Board/University at the* examinations mentioned above shall be eligible to apply for admission under this category. Candidates who have appeared for Entrance Examination may also apply for seats under this reserved quota.

Candidates born on or after 1st October 1952 are only eligible to apply for admission. The upper are limit may be relaxed by 3 years in the cases of candidates belonging to Scheduled Castes and Scheduled Tribes.

For detailed instructions please see the memorandum of information and application form which can be had from the Registrar, Indian School of Mines, Dhanbad with a Money Order for Rs. 3/-. Money Order receipts should be attached to the request for application form.

Applications in the prescribed form complete in all respects including marks-sheet should reach the Registrar, Indian School of Mines, Dhanbad by 14th July, 1973.

REGISTRAR

Agricultural VCs Meet

Courtesy ICAR

Dr. D. P. Singh, Vice-Chancellor, G. B. Pant University of Agriculture & Technology making a point at the Conference

The Indian Council of Agricultural Research organised a two-day Conference of Agricultural Universities in which officials of the State Department of Agriculture and representatives of the World Bank participated.

Mr. Fakhruddin Ali Ahmed, Union Agriculture Minister, while inaugurating the Conference announced that four Krishi Vigyan Kendras (agricultural polytechnics) will be set up soon in the different parts of the country to provide scientific agricultural education to candidates at the pre and post-matriculation level. These new polytechnics would be patterned on the recommendations of the Kothari Commission, which had emphasised the urgent need for training skilled workers and technicians of agriculture for supporting farm extension work and primary agro-industries. The conference suggested definite demarcation of areas of operation in extension work between the agricultural universities and State Department of Agriculture. This would facilitate the transfer of new technology to the farming community smoothly.

The conference among other things suggested upgrading the standard of teaching in agricultural universities and increasing the tempo of research in general and basic research in particular. Since the involvement of scientists in the National Demonstrations would provide them opportunities to know field problems intimately, the conference recommended that the National Demonstrations should be conducted by the scientists of the agricultural universities. This will also enable the scientists to test their laboratory findings in the farmers' fields.

It was decided to keep the existing duration of the professional courses in different disciplines of agriculture, veterinary science and agricultural engineering.

In order to enable the students to have first-hand experience about field problems, the conference stressed futher improvement in the practical training in crop production as is in vogue in the G.B. Pant University of Agriculture & Technology, Pantnagar. For students of veterinary and dairy science, it was suggested that internship on the pattern of medical students may be made compulsory.

The Vice-Chancellors also recommended that vacations in the agricultural universities should be planned to coincide with the busy farm operation period. This would enable the students to take part in the field operations and also help the farmers.

The Concept of Hill University

K. K. Ghosh

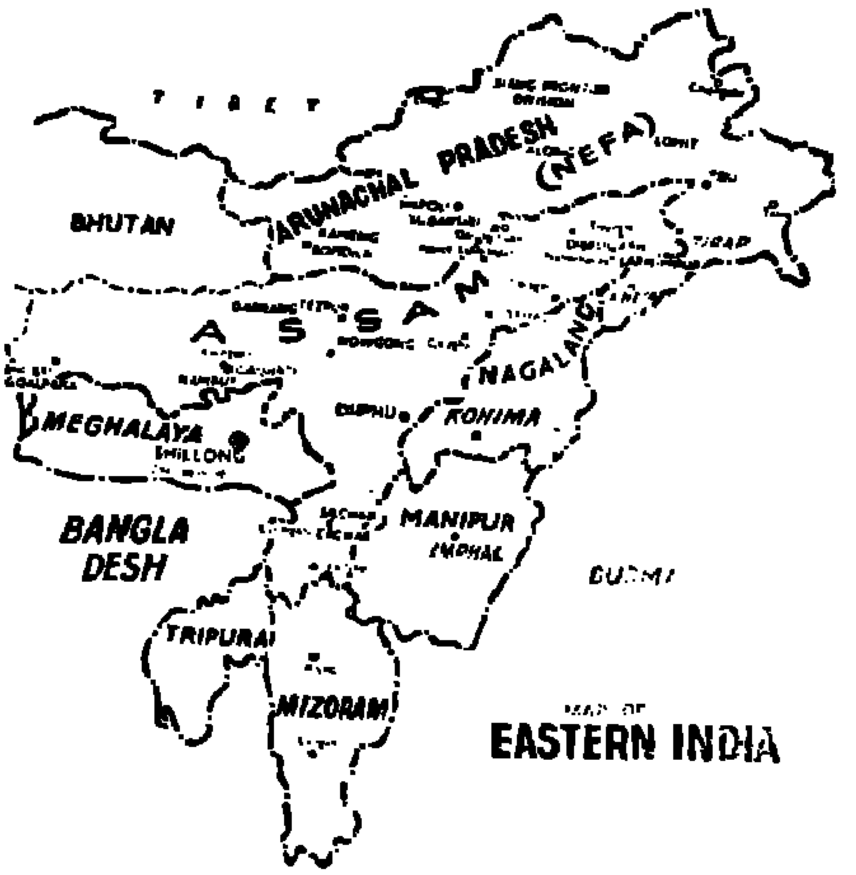
A Bill to establish a teaching and affiliating university for the hill areas of the North Eastern Region of India was passed in the Lok Sabha recently. The jurisdication of the "North-Eastern Hill University" will comprise the most under-developed and backward states of India in the hilly tribal areas bordering Burma and Bangla Desh like the States of Meghalaya, Nagaland, Arunachal and Mizoram.

In order to study the suggested function and curriculum of the university, we have to very carefully analyse the socio-economic conditions of the people of these areas. The recent visit of the Indian Chief of the Army Staff, General G. G. Bewoor to Mizoram and Nagaland is significant in the context of the recent rebel activities in these places. The blowing up of a printing press at Aijal, capital of Mizoram, and the firing at the Superintendent of Police indicate that there is considerable rebel element in the State, who are menace to peace and tranquality in the area. Likewise in Nagaland, naga rebels are known to have their activities in the inaccessible mountainous areas bordering Chittagong hill tracts of Bangla Desh or Manipur-Burma border, after training in China.

Specialised areas of study

In an areas like this, where the law and order situation, is a concern to the civil population, it makes an ideal centre for research in rebel situation for students both of the States and from all over the world, to be able when in practical life, to handle situation with the background of rebel administration. Literature in this respect are many and diverse. In this context reference may be made particularly to Irish history. Such publications as the Life Story of an old Rebel by John Denvir published by Irish University Press is a memoir covering the second half of the nineteenth century and deals largely with the social and political activities of the Irish in Britain particularly the Home Rule Confederation. The roles of OConnel, Butt, Parnell and Redmond as well as the importance of the 1867 rising and the case of the Manchester Martyrs are dealt. Another book, History of the Irish Rebellion of 1798 and sequel commenting on the attitude of Ulster catholics prior to the rebellion and on the actual progress of the insurrection in Ulstar make ideal comparative study.

The creation of Meghalaya as a separate State and its border dispute with Assam is another interesting study. The One-man Dass Committee enquired into the inter-district dispute of Khanapara and Basitha areas as a live issue. The Meghalaya Government has been considering what steps may be taken in this respect. A reference in this connection may also be made to the Scholar Revolutionary: Eoin Mac Noill, 1867-1945 and the Making of the New Ireland, where the controversial Irish Boundary Commission has been discussed.



Linguistic Problems

The whole of North-Eastern India from Assam is now a zone of linguistic problem. Recently a delegation of seven M.L.As from Kachar came to Delhi to discuss this issue. Again the Linguistic Minorities Rights Committee just submitted a memorandum to the Governor on behalf on the minority community in Derrang district demanding redress of their grievances. The outbreak of linguistics riots in Brahamputra Valley, the tension at Jorhat and Charali, the agitation of the students are such example.

With this background of the social problems some of which are enumerated above in the areas which the university will cover, the research programme has to be formulated. Again on the basis of these researches the planning as well as the developing of curricula has to be made.

Side by side with preparation of new instructional material in line with research results and re-orientation in that light the development of new units of study, as Professor Nurul Hasan recently emphasised of a multimedia university, this Hill University to be successful should be broad based on this concept. Opportunities at every stage should be given to edu-

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Dr. K.K. Ghosh is the Chairman, Indian National Committee, World University, set up by the University of Tucson.

cate these backward States. There should be workshops, community functions and seminars organized by the university. Local academic centres should be set up equipped with laboratories and teaching aids, as well as vocational and adult educational courses started.

Few suggestions

Side by side in dissemination of culture by which these backward communities may be made law-abiding citizens, it should be the function of the university to pay special attention to the improvement of the economic condition of the people. It shall not be of any interest for the Assam Plains Tribal Council to agitate for a separate Udayachal State, which will only help the division in the ranks of the progressive forces and prevent suitable solution to the tribal areas, but as the Pagare Commission report on tribals aptly pointed out, the problems affecting the tribals have to be closely studied. The national forest programme has to be studied and vocational curriculum suggested. The land system, transfers and other exploitations should form subjects of study with positive programme of economic amelioration.

Finally, besides nutrition programme as the "minimum need programme", a "three-point strategy" as envisaged in the Fifth Plan programme should also be introduced in the university, namely, liquidation of illiteracy, linking of literacy as interneeship of students at the university and expansion of farmers' training and functional literacy.

"We'd face retrenchment but for the fact that three new Universities are opened for each one burnt down......"

CLASSIFIED ADS.

UNIVERSITY OF DELHI
DELHI—110007

Applications are invited for the following posts.

S. No.—Department—Designation and scale of pay of posts:

1. Director of Physical Education (one) Rs. 700-50-1250.

2. W.U.S. Health Centre—Medical Officer (one, temporary for a period of about two years) Rs. 400-40-800-50-950 with Rs. 300/- p.m.fixed as N.P.A.

3. Faculty of Management Studies.—Professional Junior for the Library (one) Rs. 400-40-800-50-950.

4. Department of Botany—(i) One Technician (Rs. 325-15-475-EB-20-575)

(ii) One Curator Rs. 350-20-450-25-600.

5. Department of Physics and Astrophysics.—One Senior Technical Assistant Rs. 250-15-400-EB-15-575 (The scale is likely to be revised).

All posts carry Dearness, City Compensatory, House Rent allowances and retirement benefits as admissible under the rules in force in the University from time to time.

Car/Scooter allowance is though admissible for the post of Medical Officor according to the University rules, the incumbant will not be eligible for retirement benefits being a temporary vacancy.

Qualifications

I. For Director of Physical Education

Essential : Master's Degree in Physical Education or a Master's Degree in Arts/Science etc. with a Post-Graduate Diploma in Physical Education.

Desirable: Minimum of 10 years experience in a college or university as Incharge of Sports and games.

II. For Medical Officer

M.B.B.S. Degree from a recognised University. Minimum three years experience after passing M.B.B.S. required. Candidates with Post-Graduate qualifications or hospital experience will be preferred.

III. For Professional Junior

i. First or high Second class B.A./B.Sc./B. Com. Degree and First or high Second class Master's degree in Library Science.

Or

First or high Second class M.A./M.Sc./M. Com. Degree and first or high Second class B Lib Science or First or High Second class Post-Graduate diploma in Lib Science.

ii. Atleast two years experience in a Professional capacity in a Library of Standing.

IV. For the post of Curator

Essential: i. First or high Second class M.Sc. degree in Botany with adequate knowledge of systematic Botany, Economic Botany and/or Horticulture and Gardening.

ii. Experience of having worked in a Botanical Herbarium Museum and/or Garden.

Desirable: Atleast two years' teaching and/or Research experience.

For the post of Technician

Essential: M.Sc. with Physics as the main subject; adequate knowledge of Electronics, especially with reference to Electron Microscope.

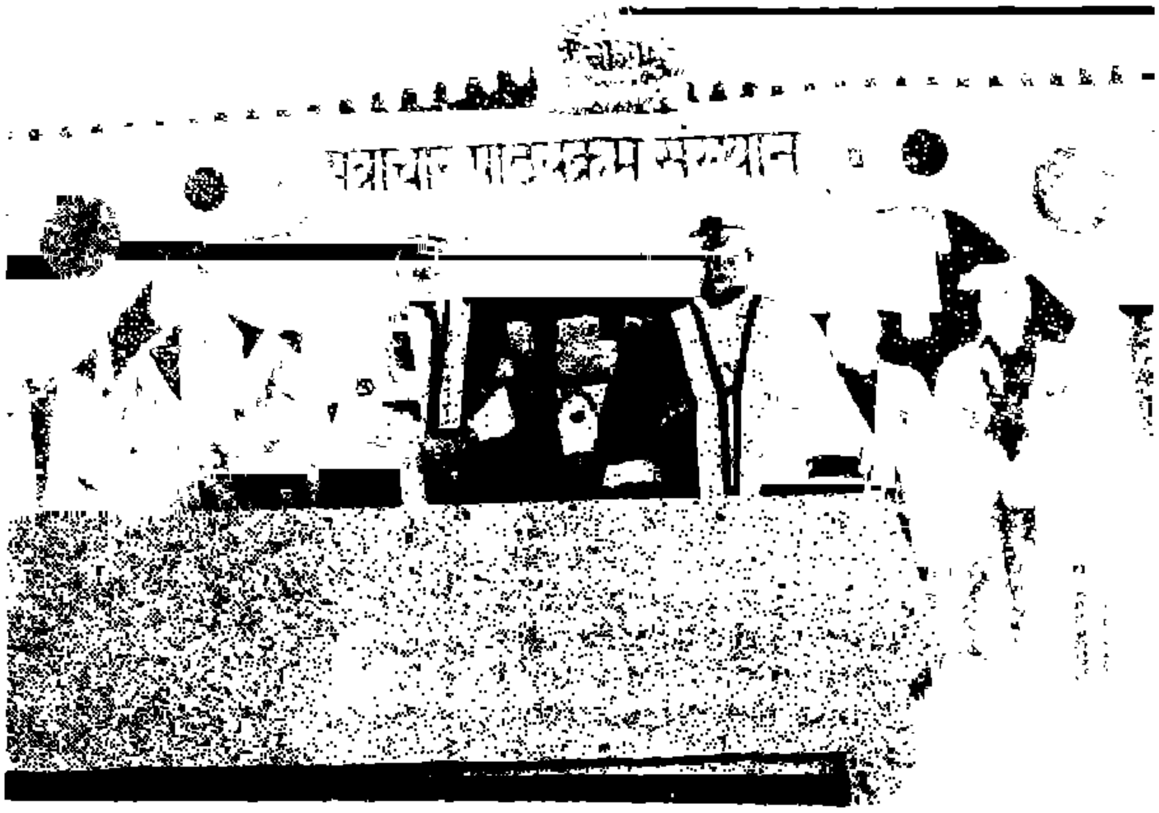
Desirable: Knowledge of maintenance of Optical Research Microscopes other laboratory equipment and apparatus, air-conditioners, frigidaires and deep-freeze cabinets.

V. For the post of Senior Technical Assistant

B.Sc. with training experience in Laboratory Techniques of the subject.

(Continued on page 26)

NATIONAL OPEN UNIVERSITY



Professor Nurul Hasan, Union Minister of Education at the second Convocation of the School of Correspondence Courses at Meerut University.

Prof. S. Nurul Hasan, Union Minister of Education was the Chief Guest at the convocation of the correspondence courses of Meerut University this year. The innovative and experimental approach of the university is solving the problems of higher education was welcomed by the Minister. Emphasising the role of part-time and non-institutional study in the present condition of the country, he pleaded for the *early establishment of the National Open University.* He wanted an integrated system of education for the country in which all the three channels of instruction, namely, full-time instructional courses, part-time institutional instructions and non-institutional private study are fully developed in a mutually complementary fashion and are given equal status at all stages from primary to the university, so that every individual can receive the education he desires in a manner most suited to his needs and capacities. And yet the choice of the mode of instruction either singly or in combination, should make little or no difference to his educational status.

The system of our education suffers from the basic weakness that it places an almost exclusive emphasis on full-time institutional instructions at all stages. The social and historical reasons for this situation can be analysed. When the present system of education was established in the nineteenth century, it was exclusively a system of full-time, institutional instruction. Inspite of changes elsewhere, the basic character of our educational system has remained unchanged though attempts are being made now to educate the masses who need the alternative channels of instruction. It is out of this increasing divergence between the needs of a modernising society with emphasis on mass education, and the obsolete character of our educational system that many of our present problems arise.

Prof. Hasan briefly outlined the important features of the National Open University which is proposed to be set up soon. In the first place there would be no specific age limit prescribed for admission but certain standards for admission would be laid down. Special admission test may be conducted by the university itself.

In our country, Television can only play a minor role in the immediate future. But the Radio will be utilized on a fairly large scale. The courses of Open *University will also have to rely heavily on the correspondence* education designed on the principles of programme learning. Such instruction will have to be supplemented with the programmes of direct contact and instruction, especially organized for all students at convenient times during the year. Local academic centres are also proposed where students may have access to libraries, laboratories and other learning aids and where even personal guidance can be arranged for them. Such centres can be immediately set up in affiliated colleges and even in selected secondary schools. The courses for the Open University will be carefully designed by specially constituted teams keeping in mind the needs of the students.

The establishment of Open University will not be in conflict with the development of other universities. In fact, the two types of universities will re-act on each other to the enrichment of both and taken together, they should provide a much better system of higher education to the people than what had been possible so far.

A Committee under the Chairmanship of Shri G. Parthasarathi, Vice-Chancellor of Jawaharlal Nehru University has already been set up to make detailed recommendations. A Sub-Committee of the University Grants Commission has also proposed the establishment of multi-media university. Very soon a bill for the establishment of National Open University would be introduced in the Parliament and simultaneous steps would be taken to enroll students as early as possible, preferably from the 1975 session.

YOUTH AGAINST FAMINE

Shri Narayan Desai, a leading Sarvodaya worker visited Baroda during January 1973. His visit led to a series of planning exercises which paved the way for holding a number of camps during this summer by M.S. Varsity. Under these programmes, youth has been involved in the national reconstruction work by undertaking projects which can create durable community assets and thereby preventing famine. These programmes have provided educational experience to the students by exposing them to the realities of the ruro-tribal life and crises situations. The camps organized under the scheme had a new approach. They were designed by synthesising the salient characteristics of the different models—Gandhian model of group living, training on the lines of physical education and Scout's camps, discipline of NCC (excluding physical punishment, operations, organisation, coordination and supervision) based on social work. The university finally adopted the integrated model.

Youth in action for the construction of Rangpur Lift Irrigation Project

The camping sites were selected on the following criteria: (1) The site should offer an opportunity to organize projects with a view to prevention of famine in the future, reducing the effects of present famine by direct participation and prevention of diseases among people of drought affected areas, (2) Readiness of a voluntary agency to give the projects and to take the responsibility for subsequent follow up, (3) Willingness of a voluntary agency to share the organisational responsibility of the camp. On these basis various sites were selected and eleven camps were organized during April to June this year. The participants of these camps were drawn mostly from the university, Tarun Shanti Sena, Gujarat Sarvodya Mandal, Uttal Buniyadi Schools and Gandhi Vidyapith, Vedchni. The local youth also participated in a big way.

Organisers of the camp took special care in selecting the projects which had special bearing on agriculture. The projects were mainly oriented towards: (1) lift irrigation, (2) afforestation, (3) deepening of well and percolation tank, (4) Kotar bunding—reclamation of land (5) building approach road.

Other programmes like medical relief, socio-economic, survey, lok sampark (public contact), collecting food-grains and distributing the same, working with the relief workers and organization of study circles were also taken up.

On the conclusion of these camps, their evaluation was done through the circulation of evaluation sheets among the participants at random basis. It was found that personal contacts had been the major motivating factor for the big enrolment. The students liked Lok Sampark the most. The reasons given were the opportunity to know the rural India, increase in the general knowledge about rural life, realization of hardship, and rapport with the rural population. Manual work, group living, camp life, work in kitchen, early rising were the priorities for the campers. Sizeable section of the students liked group discussions while many of them expressed the strong displeasure against the ideological talks, lectures by visitors, monotonous discussions and talks regarding Gandhian living. Majority of the students liked manual work because it provided them an opportunity to express their faith in the dignity of labour. These camps were very important with a view of their value in remodeling the life pattern of students. Most of them accepted the educative value of this campaign. Integration, art of making friendship and adjustment, group living, tolerance to others views, development of frankness, development of art of expression, injection of the sense of punctuality, discipline and responsibility, and learning the art of cooking and serving the food were the foremost advantages gained by the students. Some of the students however demanded further democratization and decentralization in the camps.

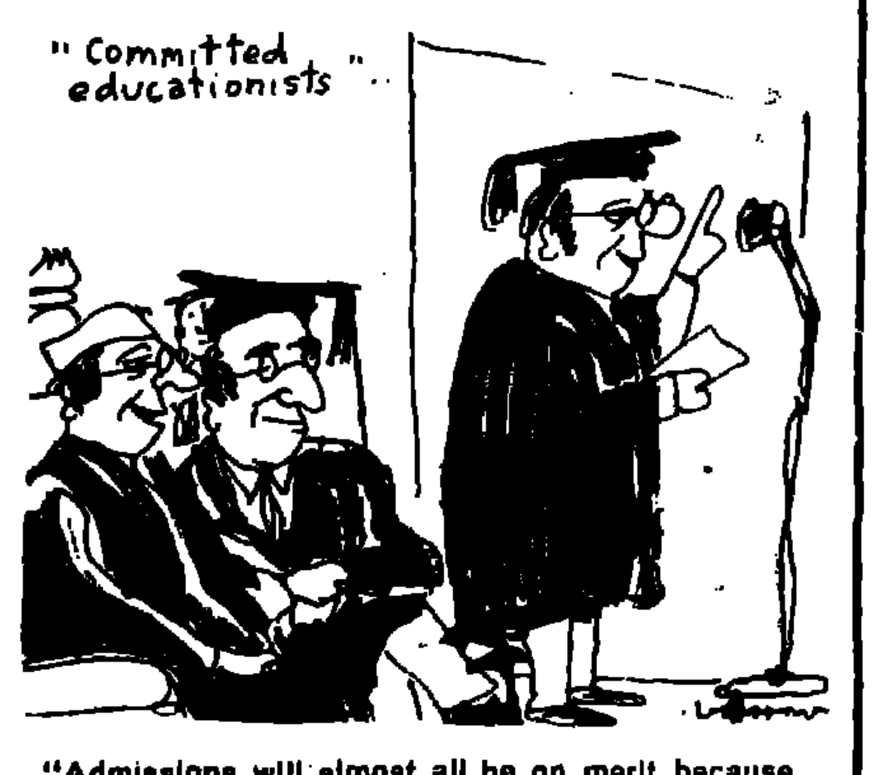
The students have learnt the specific necessity and advantages of labour. In the final analysis, the Youth Against Famine programme has laid deep roots of youth movement in the country.□

PLANS FOR ALL INDIA EDUCATIONAL SURVEY

The Union Education Ministry would undertake a comprehensive survey of the educational set up in the country from July 1. A separate bureau of educational statistics and information is being set up in the Ministry for this purpose. It will work in close collaboration with the State counterparts and the corresponding organizations in the University Grants Commission, National Council of Educational Research and Training, National Staff College for Educational Planners and Administrators and the Central Statistical Organization. The preliminary statistical report is expected to be ready by March. The present survey would be wider in scope and dimension than the earlier two surveys of 1965 and 1967. It is expected to cover the entire educational system and institutions of all categories. It will provide a comprehensive picture of the total educational system with an assessment of the achievement made in the last twelve years. The survey would also meet the requirements of the Fifth Five Year Plan in particular and of the long-term needs of the educational planning and development.

The survey would cost Rs. 25 lakhs this year and 45 lakhs in the next year. Among other things, information would be collected on the total investments made in the educational system in the form of loans, building and equipment. The public library system, programmes of non-formal education on teachers on the basis of their age or total emoluments and the manner and the extent of community support to education would be studied.

The survey will be divided into five areas: (1) School stage: Here all educational institutions at the school stage will be surveyed (except vocational institutions). The N.C.E.R.T. will do this survey; (2) Higher Education: This will survey all educational institutions beyond the matriculation or higher secondary. The University Grants Commission will do this survey; (3) Vocational Education: It will include a survey of institutions of vocational education. It will study other agencies like industry etc., which provide vocational education and related aspects. The Institute of Applied Economic Research will undertake this survey; (4) Educational Administration: The National Staff College for Educational Planners and Administrators will undertake this work which will include a survey of all aspects of educational administration at the state-level; (5) Cultural Programmes: The Department of Culture will set up a special unit to do this survey.



"Admissions will almost all be on merit because politicians never recommend a case in its absence......"

Calcutta University Convocation

Dr. Satyendranath Bose (left), Shri A.L. Dias, Chancellor (2nd) addressing the Convocation, Dr. S.N. Sen, Vice-Chancellor (3rd) and Shri Arun Ray (4th) seen on the dais

The annual convocation of Calcutta University was held on 16th June. On this occasion, fifty five eminent scholars—Indian and foreign were awarded special medals and prizes for their outstanding contributions. Mr. A.L. Dias, the Chancellor presided. Dr. S. N. Sen, the Vice-Chancellor of the university said that the good students of this university command attention in other universities of the country and also in the world. Research work that is conducted at the university still wins admiration of the distinguished professors in foreign countries. Dr. Sen opposed the charges made in some quarters about the decline of standards in the university. He however admitted that there was a marked fall in the standard of English but this was not the only yardstick for such purpose, as less importance has been attached to the learning of English since independence.

Prof. S. N. Bose, National Professor addressed the convocation in Bengali. He pointed out that in sharp contrast with the glorious part played by the youth of the State in pre-independence days, there had been gradual deterioration in the State in all spheres and a situation had been reached when even the established business houses had started moving out of the State adding miseries to the local people. He emphasised the need of early eradication of illiteracy. Prof. Bose made an appeal to the youth to rise to the occasion and bring back the lost glory of the State.

The Degree of Doctor of Medicine was posthumously conferred on late Dr. Silendra Nath Sen and the Degree of Doctor of Laws on the former Chief Justice of Calcutta High Court, Mr. Prasanta Behari Mukerjee. In all four hundred fifty one scholars were awarded doctorate and other research degrees. Several gold medals and prizes were awarded for contribution in different spheres of knowledge. Prominent among the recipient of gold medals was the renowned historian, Dr. Ramesh Chandra.

IMPLEMENTATION OF NATIONAL POLICY OF EDUCATION

The role of university teachers in the implementation of the national policy on education was the main theme of the address of Dr. P.D. Shukla to the Delhi University Teachers Society. In his view a country's education is what its teachers are. But there are a number of specific roles of university teachers. One of these relates to raising of the quality of the standard of education. This would imply raising the standard of higher education for its own sake. The universities would also supply more knowledgeable and better trained teachers for school and college education. The production of books and other reading material for students is equally important. The University level books in various Indian languages and even in English are inadequate. This requires urgent consideration. The question of improving the employability of young students passing out from the schools and colleges has also assumed great importance. In the 10+2+3 educational structure, the two year stage of higher secondary education has been visualised to provide for two distinct streams—academic and vocational. The academic stream is to be higher education and university-oriented. The vocational stream is to provide for job-oriented courses which are terminal in character. Appropriate bridges will need to be built in the streams so that talented students and others can change over from one stream to the other with or without some additional education or training, as the case may be. In this challenging area of educational reconstruction, the teachers of various professional subjects can study the potential for work and employment in their region and suggest suitable courses for introduction at the higher secondary stage. They can also help in the preparations of relevant syllabi for instruction and training and offer their institutional premises, wherever feasible, for supervised practical training and experience of students. A scheme of internship, for such trainees in their organizations can also be worked out with the support and cooperation of the same teacher.

Dr. Shukla also emphasised the immediate need to reform the examination system. He said that the focus should be on the reform of the question paper, which is only set by teachers. Introduction of an increasing number of short answer questions in the question paper and the improvement of quality of the essay type question should be taken as early as possible. The question paper should have a fuller coverage of the syllabus, encouraging students to study throughout the year. The element of subjectivity in evaluation of the scripts should be minimised. How best the improved technology can be introduced in the evaluation work of each individual discipline and what further needs to be done in this area are matters which need the consideration of the teaching community.

The national policy is against the opening of poorly financed universities and admission of students without regard to available facilities. The development of part-time and own-time education and training has been stressed. The teachers working in the whole time institutions have to play their role by giving greater support and encouragement to part-time and own-time education and training.

SPORTS COURSES AT H.A.U.

The university is proposing to introduce a pre-university course in its Sports College from the coming academic session. In this one-year course subjects relating to hygiene, physiology, nutrition, general knowledge and personality development would be introduced. The college would also be having a four-year Bachelor of Sports programme. Special emphasis would be laid on the subjects like personality development, sports medicine, organisation and promotion of sports. Subjects like sales promotion, personnel management and personnel welfare will be introduced in the final year of the course. A sum of Rupees eight lakhs has been provided in the current financial year to encourage the sports activities and related programmes.

PREPARATION FOR MOSCOW UNIVERSIADE

The Indian Universities would be participating in the Universiade to be held in Moscow this year from 15th to 25th August, 1973. The contingent consisting of Athletics, Tennis and Wrestling teams would be leaving Delhi for Moscow on 11th August, 1973. The participants numbeing 20-25 will be finally selected. The preliminary selection trials have been completed. Camps for this purpose were recently held at Mysore and Delhi. The coaching camp for athletics is already in progress at the Netaji Subhas National Institute of Sports, Patiala. The final selection trials would be completed by the middle of July. Those finally selected will undergo an intensive training for three weeks prior to their departure for Moscow.

INDO—AFGHAN ACADEMIC COOPERATION

Discussion for collaboration between India and Afghanistan for providing assistance to Kabul University's Department of English teaching are in progress. A survey on the nature of the assistance required by the university has already been carried out. The Indian Professors of History and Geography would be shortly going to Kabul to work in these departments. India's assistance has also been sought for the development of the second university of Afghanistan—Nangarhas University near Jalalabad. A number of Indian teachers are already in Afghanistan on two years assignment.

IMA REVISES ENTRANCE QUALIFICATIONS

The Indian Military Academy at Dehradun from July 1974 onwards would admit graduates to its courses. This would raise the academic background of the commissioned officers in the Indian Army and at the same time would reduce the two-years course to eighteen months. Greater emphasis would now be placed on ths study of military history and modern warfare. The Training Directorate of the Ministry of Defence has decided that cadets who failed to get through the Elementary Flying School and the Naval Academy would now be considered for commission to the regular army. This has not been the earlier practice and a cadet having once failed was asked to look for jobs elsewhere. At present, the stipends are limited to Rs. 40. This has been responsible to a considerable extent in the poor admissions to Indian Military Academy and National Defence Academy. The Ministry of Defence is considering a proposal to increase the stipends to cadets coming from lower and middle group families with a view to attracting more candidates to join the army.

MANPOWER SURVEY PLANNED BY TECHNOLOGICAL VARSITY

The Jawaharlal Nehru Technological University, Hyderabad—the first technological university to be set up in the country—is planning to have a collaborative study with the Institute of Applied Manpower Research to develop a clear understanding of the functional requirements of engineering positions and job-levels in industry, government departments and other organizations. The study would also evolve goals of engineering education and try to relate them to the educational and training systems.

A study of this type has not been carried so far in the country. The curricula of the engineering degree courses and instructional methods are not properly linked to the requirements of industry for engineering manpower. This has caused a big gap between the requirements of engineering profession and engineering institutions leading to the criticism by industry that the graduates coming from technical institutions do not fulfil their requirements. In fact, during the last twenty years, engineering education has expanded at a phenomenal scale without the determination of the goal structure.

The survey will be both qualitative and quantitative and will seek to provide the basic information and data from the professional field to the academic faculty for curriculum development, preparation of instructional material, development of new teaching and learning processes. The survey would also ascertain the real needs of technical jobs in industry and other organizations on the basis of activity analysis and express them in terms of technical knowledge, skills and competencies required for these jobs. It would also assess the characteristicks of technical personnel holding technical jobs in industry and analyse the nature and extent of the matching of men with jobs and identify those aspects of the inputs necessary to ensure proper development of technical personnel. It would seek to formulate an action plan for developing appropriate skill generating systems.

The analysis of jobs and survey of technical personnel in industry will be on the basis of on-the-spot study assisted by questionnaire studies. Before the launching of the survey a preliminary investigation is proposed to be carried out to prepare a list of priorities in regard to focus, emphasis, selection of economic factors and tools for the survey. A sampling design will then be prepared to ensure a representative cross-section of manpower employee groups and technical jobs covering the entire economy.

The Chief Coordinator for this project would be appointed by the university. They will be experts one in each branch of engineering—civil, mechanical, electrical, electronics and chemical—again from the university. The Field Investigators would be mostly on ad-hoc basis and will be drawn from the different departments and constituent colleges of the universities. The whole project will be carried out under the overall guidance of an advisory committee.

NEW GOVERNING BODIES FOR DELHI COLLEGES

The Academic Council of Delhi University recently approved the plan for reorganising the Governing Bodies of the Colleges. The twelve-member Governing Body will comprise three representatives of the trusts, three among the teachers, two university nominees, one each from karamcharis and students, one educationist from outside the university. The principal of the College will be the ex-officio member.

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NEWS

N.S.I.S. PATIALA

A Tennis Coaching Camp in progress

The Netaji Subhas National Institute of Sports was established by the Government of India in 1961. During all these years, it has served the cause of games and sports in the country. The main contribution however has been in the field of training of coaches. It has a cadre of 304 coaches of different categories. The coaches have been trained abroad mostly in U.S.S.R., West Germany and East Germany. The coaches which are on the teaching staff of the institute remain at headquarters while the bulk of field wing staff serve all over the country. Few coaches has been sent abroad and are imparting useful training in foreign countries.

Coaching Programme

The Institute has also sofar produced 2046 qualified coaches in various games and sports. Regular course of ten months duration as well as condensed courses of six months duration are organized every year. Besides, a special six weeks short course is run for the benefit of teachers of Physical education during the summer vacations. The coaching course of study available at the Institute are in the following fields: (i) Athletics, (ii) Badminton, (iii) Basketball, (iv) Cricket, (v) Football, (vi) Gymnastics. (vii) Hockey, (viii) Lawn Tennis, (ix) Swimming. (x) Table Tennis, (xi) Vollyball (xii) Wrestling, and (xiii) Weight-lifting. To help popularise the indigenous sports, orientation courses are also being organized in Kabaddi and Kho-Kho. The Institute has gradually built up the cadre of these coaches. Initially, the services of expert coaches from abroad were requisitioned and Indian understudy coaches were attached to them. The teaching staff is now completely Indianised. Foreign coaches are however invited from time to time on short assignments to hold special clinics and help in the coaching programmes of the Institute.

Regional Centres

Under the national Coaching Scheme, the Institute has established Regional Coaching Centres at Delhi, Hyderabad, Jaipur, Lucknow, Nagpur, Bangalore, Gandhinagar, Jabalpur, Patna, Amritsar, Chandigarh, Goa, Port Blair, Jammu and Srinagar. The Regional Coaching Centres are regularly provided with the sports equipment up to the value of Rs. 10,000 per annum and good number of the coaches on these centres are also provided by the Institute.

Besides organising the coaching programmes, the Institute also prepares the various national teams which go out for participating in international events. The intensive training provided helps in the improvement of national standards of our athletes. To encourage sports agencies in rural areas, the Institute has been organizing All India Rural Sports Tournaments since 1971. The first tournament was held in Patiala, the second at Jaipur and the third one was held recently in New Delhi.

University Sports

The Institute has been extending its cooperation to universities and colleges. The N.I.S. Field Coaches have been instructed to attend to their requirements on priority basis in consultation with the State Councils to whom they are attached. A large number of the coaches have participated in the coaching programme of the NSO.

Fellowships and Scholarships

Besides these field activities, the Institute has instituted three fellowships for research in Sports Medicine. Fellowships are also expected to be instituted for research in other fields connected with games and sports. The sports medicine department of the Institute is very well organized. The First National Seminar on Sports Medicine was held at Patiala in 1971 and was attended by a large number of Physicians, Surgeons, Physiotherapists, Psychologists, Coaches and Physical Educationists from all over the country. The Second Seminar was held in Hyderabad in 1972.

Under the Sports Talent Search Scheme, two hundred scholarships on the basis of National Level competitions of the value of Rs. 50/- per month each and four hundred scholarships on the basis of State Level competitions of the value of Rs. 25/- per month each are awarded by the Institute every year to deserving candidates.

Campus

The Institute is located in the

old Moti Bagh Palace. It has extensive well-laid out play-fields and grounds. The covered acommodation is spread over about 350 acres of land. A modern Swimming Pool and Gymnasium is under construction. The institute is also planning the construction of a shooting range in consultation with the National Rifle Association of India and the Govt. of India.

Extension Services

The NIS is functioning as the headquarters of the Asian Track and Field Statistical Research Centre, Asian Association of *Track and Field Statisticians*, Indian Association of Sports Medicine and Athletic Coaches Association of India. The Institute has also received recognition from various sports institutions all over the world. ATHLETIC ASIA a bi-annual publication of Asian Athletic Coaches Association is published by the Institute.

To popularise sports and games in the country, NIS is bringing out a series of paperback publication like (i) Playing Field Manual, (ii) Badminton, (iii) Basketball, (iv) Kabaddi, (v) Lawn Tennis, (vi) Cricket, (vii) Athletics. NIS Journal is a quarterly publication which deals with sports activities. A new journal on sports medicine has been brought out recently. The Institute library has a collection of over 5000 books in various games and sports medicine, sports psychology, sports sociology and other allied sciences. Over 52 periodicals are regularly contributed. A National Sports Museum has been recently established with the help of the collections of Shri Yadavindra Singh formerly Maharaja of Patiala and late Shri Pankaj Gupta.

The Institute would be hosting the symposium on "Exercises and Sports Physiology" at Patiala in collaboration with the Defence Institute of Physiology and Allied Sciences during 1974 when the XXVI International Congress of Physiological Sciences will be held at New Delhi. A large number of foreign and Indian experts are expected to attend.

OPEN UNIVERSITY FOR SRI LANKA

University of Sri Lanka has appointed a special committee to map out the working of an Open University which is to be set up shortly. Dr. Osmund Jayaratne, President of the Colombo Campus of University of Sri Lanka is the Chirman of the committee. The Open University will give an opportunity to adults to obtain university degrees, particularly those who are in unemployment. These adult students will be able to sit their university degrees by following lessons through the radio, correspondence courses and vocational cources. Initially, university would cater to adults over thirty five years of age. It would provide foundation courses for adults who were not adequately qualified.

CHANGING EDUCATIONAL PATTERN IN ASSAM

A three-day symposium on the new structure of education in Assam was held under the auspices of the Gauhati University Teachers Association. The symposium was inaugurated by Shri S. C. Sinha, the Chief Minister of the State. Shri S. C. Rajkhowa, Vice-Chancellor of the university was the Chief Guest at the concluding function. They appreciated the idea of organizing such a symposium in the wake of the changing pattern of education all over the country. Over two hundred educationists and experts came from all over Assam, Manipur, Mizoram, NEFA, Nagaland and Meghalaya. A number of papers were presented covering the various aspects of education in the State. The curricula and syllabi are being completely recasted. Universities of Gauhati and Dibrugarh have decided to switch over to the two-year pre-university course instead of the present one-year course. Assamese has been introduced as the medium of instruction up to pre-university classes but English is also allowed to continue for a period of ten years.

Dr. D. P. Barooha, the President of the Association briefly outlined the genesis of the symposium. It was suggested that there should be proper coordination between universities and the Board of Secondary Education for implementing the new educational pattern. The symposium also suggested to the universities of Assam that an educational research bureau be established to conduct research for curriculum training and evaluation. It was recommended that the work-experience should be introduced as recommended by the Education Commission and sufficient flexibility should be maintained for introducing such programmes in the curriculum. The question of production of textbooks was also discussed and it was suggested that there should be effective coordination between the university coordination committee for textbooks production and the State Textbook Corporation in the matter of production of textbooks so that they are made available to students well in time. A recommedation was made for the creation of State Advisory Board to advise the Government of Assam on all matters relating to education. This Board should be representative in character and should include representatives of teachers, professional organizations, educational administrators and all those concerned with the education in the State.

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PUBLIC ADMINISTRATORS MEET

The second annual conference of the Indian Association of Public Administration was held at Osmania recently. Shri H. C. Sarin, Adviser to the Governor of Andhra Pradesh, inaugurated the conference. He pleaded for clean administration and suggested that methods be devised to reward good performance and punish inefficiency in administration. A conference on "Bureaucracy and Development" was organized on this occasion. Representatives from the Universities of Sagar, Lucknow, Delhi, Mysore, Calcutta and Chandigarh besides Osmania participated. Another conference was also organized by the department to discuss the teaching curricula and steps that may be taken to improve the teaching methods in the public administration department. Summer Schools in the Department of Physics and Political Science were also organized this year for the benefit of teachers of the southern universities.

ORNITHOLOGICAL STUDIES AT APAU

The Andhra Pradesh Agricultural University has been chosen by the Indian Council of Agricultural Research as one of the two centres to be set up in the country for ornithological studies in relation to agriculture. It is proposed to confine the study initially to the survey and distribution of the various species of birds that are damaging the crops. Though a lot of systematic ornithological work has been done in the country by Mr. Saleem Ali and others, the economic aspects of this study has not been fully studied. For this purpose, the services of two foreign experts may be obtained for the initial stages of the project when a field survey would be organized. Later on steps to avoid the wastage of crops would be taken up. The two centres of the I.C.A.R. to be set up are —Hyderabad in the South and the Indian Agricultural Research Institute at New Delhi.

ART HISTORY COURSES AT BARODA

The Faculty of Fine Arts of the Maharaja Sayajirao University of Baroda would be starting postgraduate courses in Art History and Art Criticism from this academic year. The Department of Art History, which has both Art Historians and practicising artists on its staff has given considerable thought to the planning of these courses which will be the first of their kind in India. The study of Art History has not yet found its proper place in our universities, though the country is rich both in Art History and its practice. These courses would lay stress on the students exposture to works of art, their techniques and processes, their conceptual background, in addition to studies in chronological history and inconographic analysis. They attempt thereby to prepare the students to respond to works of art with their sensibilities at the same time as being knowledgeable about them.

The department has a growing archive of visual material comprising of original works, reproductions, slides and photographs. Being on the same campus as the studio departments, it affords its students opportunities for contact with creative artists and observation of their working methods.

These courses are likely to be more popular with the increase in the number of museums, schools and public information media. The department will also provide undergraduate courses in addition to these postgraduate programmes.

TECHNICAL EDUCATION TO BE STREAMLINED

The Planning Commission has drawn a plan for the reorganisation and development of technical study within the framework of its allocation. The programme seeks to diversify the polytechnic education and introduce part-time and short-term courses in the various technological institutes to meet the requirements of the industry. Workshops and libraries would be modernised and obsolete equipment would be replaced especially in the older institutes. Additional facilities would be provided for diploma courses in the applied art, commercial practice, pharmacy etc.

The staffing pattern in engineering colleges and polytechnics would be revised on the basis of the recommendations of the All-India Council of Technical Education.

The Institutes of Technology will be encouraged to develop advanced centres in selected technical fields. The regional engineering colleges would offer various industry-oriented courses and would be setting up practice laboratories in consultation with industry in their neighbourhood. Selected institutions will also undertake research and development work according to the national plan of science and technology.

The postgraduate engineering education and research would be reviewed and a blueprint would be prepared for a more meaningful development. A joint committee of the University Grants Commission and Union Education Ministry would review the first degree level courses in engineering and technology.

The management education would also be strengthened. The existing institutes of management and the university departments would be provided with adequate funds. Possibilities of opening institutes of management at Bangalore and Lucknow would be examined. The steering group on education has recommended the revival of the scheme of merit-cum-means scholarships. The apprenticeship training of graduates and diploma holders would be arranged more frequently. A few selected engineering colleges may be upgraded as centres of advanced study and research keeping in view the long-term needs of the country.

NEW RESEARCH CENTRES FOR PANTNAGAR

The Planning Commission has recently sanctioned a project costing over five crores rupees to develop the agricultural technology in the hill areas. Pantnagar University has been charged with the responsibility of identifying the specific problems of different altitudes in U.P. hill areas. A experimental-cum-extension centre will be started by the university. In about three years time, it is likely to develop into a second campus of the university.

At present none of the eight hill districts of U. P. have an agricultural college which may provide practical training in the technology of hill areas or extension work. Various agencies dealing with agriculture, livestock and forestry research in the states would be coordinating the programme through this proposed research station. A site measuring about 4,000 acres at Ranichauri in Tehri district has been selected for this purpose. The project would come into full operation in the Fifth Plan and will be multi-disciplinary in character. The other six sub-centres are proposed to be developed at Chaubatia (Horticulture), Kanathal (Horticulture); Dhaigala (crop management research for valley areas) and Pithoragarh, Chamoli and Dehra Dun (livestock).

COMMITTEE FOR AUTONOMOUS COLLEGES

The Union Education Ministry has constituted a committee for working out a scheme for instituting autonomous colleges as a step towards promoting collegiate education. Though provision exists in the Acts of many universities for the constitution of such colleges, so far the Birla College of Technology, Mesra affiliated to Ranchi University has been declared as an autonomous college.

The Gajendragadkar Committee on governance of the universities and colleges pleaded for autonomous colleges. The report had favoured giving certain autonomy to teaching departments as well especially in the centres of advanced study. The Committee appointed by the Ministry of Education would be considering these questions in all aspects. The selected colleges would be empowered to frame their results of admissions, prescribe the courses of study and conduct their own examinations. The role of university would be of general supervision and of awarding the university degrees. The Committee would also examine the question of determining the criteria, guidelines and the pattern of assistance to these colleges.

CLASSIFIED ADS.

ALIGARH MUSLIM UNIVERSITY ALIGARH

Advertisement No. 4,73-74

Applications are invited on the prescribed form for the fol owing posts:

Candidates must possess Medical qualification included in Ist or 2nd schedule of Part II of the third schedule (other than Licentiate qualifications) of the Indian Medical Council Act, 1956. Holders of educational qualifications included in Part II of the third schedule should fulfil the condition stipulated in Section 13(3) of the I. M. C. Act, 1956. Must possess a basic University or equivalent qualification entered in schedules under State/Central Medical Registration Act. (For posts at Sl. Nos. 1 &2 only)

1. **Lecturer in Ophthalmology (Institute of Ophthalmology) in the scale of Rs. 400-40-800-50-950 plus allowances**

Qualifications: M.S. (Ophthalmology) Speciality Board of Ophthalmology (USA), M.S./- F.R.C.S. (with D.O., D.O.M.C.) or an equivalent qualification. As Registrar or an equivalent post for atleast three years in Ophthalmology or allied subject in a teaching institution.

2. **Lecturer in Anaesthesiology (A. K. Tibbiya College) in the scale of Rs 400-40-800-50-950; plus allowances.**

Qualifications: Post-Graduate Degree or Diploma in Anaesthesiology from a recognised Institution.

Desirable: Experience in Anaesthesia in some recognised Hospital. Working knowledge of Urdu.

3. **Lecturers in Physics (Z. H. Engineering College) in the scale of Rs 400-40-800-50-950 plus allowances (One permanent & one temp.)**

Qualifications: A First or High Second Class M.Sc. degree in Physics of an Indian University or an equivalent qualification.

Desirable: Ordinarily two years' experience of teaching of B. Sc. or B. Sc. Engineering Classes or published work of Doctorate Standard. Specialization in Nuclear Physics, Solid State Physics or Electronics.

4. **Lecturers in Zoology (Department of Zoology) in the scale of Rs 400-40-800-50-950 plus allowances.**

Qualifications: Ordinarily a First or High Second Class Master's Degree in Zoology of an Indian University or an equivalent foreign qualification.

Desirable: Some experience of Research or Teaching.

5. **Lecturers in Law (Department of Law) in the scale of Rs 400-40-800-50-950 plus allowances.**

Qualifications: Atleast a First or High Second Class Master's Degree in Law from an Indian University or an equivalent foreign qualification.

Desirable: Experience of teaching LL. B. & LL. M. Classes.

6. **Lecturer in Russian History (Department of History) in the scale of Rs. 400-40-800-50-950 plus allowances.**

Qualifications: Atleast a First or High Second Class Master's Degree in Russian History or an equivalent foreign qualification.

7. **Part-time Lecturer in Law (Department of Law) on Rs. 500/- p. m. (fixed).**

Qualifications: Good academic record with a First or High Second Class Bachelor of Laws or high degree in Law of an Indian University or Foreign University. Practice at the Bar for about 10 years or about 10 years' experience as judicial officer and ability to teach procedural subjects like Civil and Criminal Procedure, Evidence and to conduct moots.

Prescribed application form & Instructions may be had from the Dy. Registrar (Executive) by sending self-addressed envelope of 9"x4". Last date for receipt of applications is 22nd July, 1973. Incomplete applications and those received late may not be considered.

Higher start except in case of No. 7 above may be given for special qualifications and experience. Candidates interviewed may be paid contribution towards their T. A. equal to one single second class Railway Fare only.

(P. V. GEORGE)
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THESES OF THE MONTH

PHYSICAL SCIENCES

Mathematics

1. Kailash Chandra. Hydromagnetic stability of density stratified spiral and plane flows with and wihout temperature gradient. Meerut University.

2. Sharma, Keshav Datt. A study of boundary value problems. University of Rajasthan.

3. Sharma, Krishna Chandra. Studies on magnus instability and some related problems in exterior ballistics. University of Poona.

4. Tikekar, Ramesh Shriram. Geometric aspects of relativistic fields of gravitation. University of Poona.

Physics

1. Belgal, P.R. Direct analogue computer method of solving hydraulic and hydrological problems. Karnatak University.

2. Pandey, Hem Datt. Self focusing of electromagnetic waves in semiconductors and dielectrics. Indian Institute of Technology, Delhi.

3. Sharma, Madan Lal. Role of relaxation in fluids. University of Rajasthan.

4. Sharma, Shiv Kumar. Laser-Raman studies of the structure of electrolytes in aqueous solutions and hydrated melts. Indian Institute of Technology, Delhi.

Chemistry

1. Eswaran, S.V. A study of the lac resin: Preparation and spectra of some derivatives of aleuritic and shellolic acids and the resolution of (±) threo aleuritic acid. University of Delhi.

2. Gokhale, Pushpa Damodar. Photochemistry of some organic molecules. University of Poona.

3. Patil, Vinayak Dagadu. Chemistry of commiphora mukul cum resin. University of Poona.

4. Ramachandran Nair, K.R. Spectroscopic and polarographic studies on molecular structure. University of Poona.

5. Roy, Bachaspati. Studies on terpenoids and related compounds. University of Kalyani.

6. Anjaneyulu, Yerramilli. Studies on the mixed ligand complexes of vanadium with oxine and some common anions and their analytical applications. Andhra University.

Earth Sciences

Badve, Ramesh Moreshwar. Stratigraphy and palaeontology of the Bagh Beds of Narbada Valley. University of Poona.

Engineering

1. Atre, Shankar Ramana. On stochastic optimal estimation for distributed parameter systems. Indian Institute of Technology, Delhi.

2. Basu, Prabir. On flame propagation in premixed gaseous mixture. University of Burdwan.

3. Bhargava, Madhubala. A.C. polarography of some organic compounds. Bhopal University.

4. Jha, Rambhawan Shivnarayan. Single-phase operation of polyphase machine. Indian Institute of Technology, Delhi.

5. Narinder Kumar. The dynamics of necking. Indian Institute of Technology, Delhi.

BIOLOGICAL SCIENCES

Biochemistry

1. Ghafoorunissa. Studies on the role of leucine in the pathogenesis of pellagra. Osmania University.

2. Hafeezur Rahman. Studies on the social behaviour and ecology of bonnet monkeys with supplemental studies on cytology and biochemistry. Bangalore University.

3. Lakshmaiah. Studies on folic acid conjugate. Osmania University.

Botany

1. Chatterjee, Samir. Leaf abscission mechanisms in cotton (Gossypium barbadense L.) and in early/late shedding jute (Corchorus olitorius L.) University of Burdwan.

2. Krishan Pratap. Monographic studies on eleocharis. Meerut University.

3. Srinivasa Murthy, Magal Hulirao. Studies on palms with special reference to the members of ceroxylinae. University of Poona.

4. Tyagi, Bali Ram. Studies on chromosomal interchanges in Pearl millet (Pennisetum typhoides). Meerut University.

Zoology

1. Anand, Tek Chand. Experimental studies on hormonal regulation of cogenesis in the catfish, Heteropneustes Fossilis (Bloch). University of Delhi.

2. Chisty, Khaja Zakiuddin. Studies on the nematodes associated with ornamental plants. Marathwada University.

3. Das, Subhashini Rekha. Studies on monogenetic trematodes. Marathwada University.

4. Gohain, Ruma. Investigation on the requirements of amino acids and vitamins including physiological disorders caused by their deficiency in lariouerma serricorne (F). University of Rajasthan.

5. Kale, Radhu D. Studies on some mechanisms in thermal acclimation of a poikilotharam. Bangalore University.

6. Kanaka Rani. Studies on cytology and morphology of some diplopoda (myriapoda). Bangalore University.

7. Leela, N.S. Effect of temperature acclimation on some aspects of lipid metabolism in a poikilotharam. Bangalore University.

8. Radha, E. Studies on the phasic and tonic muscle proteins during the development of chick in zoology. Bangalore University.

9. Saxena, Prabha. Investigations on the effects of toxicants on certain aves. University of Rajasthan.

10. Sengupta, Mamta. Effect of radiophosphorus on the prenatal and postnatal development of liver in Swiss albino mice. University of Rajasthan.

11. Sharifa Akhtar. Qualitative and quantitative studies on fresh water plankton (ostracoda, cladocera, rotifera and copepoda) of Kashmir lakes and ponds. University of Kashmir.

12. Thampan, Raghava Varman T.N. Studies on the macromolecular binding of estradiol in the liver of the albino rat. University of Delhi.

Medical Sciences

Kowale, Bal Narayan. Effect of dietary proteins on lipid metabolism. University of Delhi.

Agriculture

1. Balakrishna Rao, K. Influence of fertilizers and S-triazones on yield and composition of green leaves and leaf protein concentrate. University of Agricultural Sciences, Hebbal.

2. Bharathi, V.S. Genetic and biochemical studies of some normal and induced mutants in maize. Osmania University.

3. Malvinder Singh. Agronomic studies on Napier Bajra hybrid (NB 21). Punjab Agricultural University.

4. Sharma, Om Parkash. Paradigm for effective coordination under Indo-German agricultural package programme, Mandi (Himachal Pradesh). Punjab Agricultural University.

5. Surinder Pal Singh. Studies on susceptibility of wheat and maize varieties to zinc deficiency in soil. Punjab Agricultural University.

Veterinary Science

1. Joshi, Bhagwat Prasad. Clinico-biochemical studies of rumen dysfunctions in cows and buffaloes with reference to changes in the rumen contents and blood particularly the histamine levels. Magadh University.

2. Kalyana Sundaram, Ramaswamy. Studies on spiriruds of fowls (Gallus Gallus domesticus). University of Kerala.

SOCIAL SCIENCES

Sociology

1. Chaturvedi, Het Ram. District bureaucracy : A soicological analysis. University of Poona.

2. Joshi, Sanatkumar Trikamji. Power structure and social change in a town in Gujarat. South Gujarat University.

Political Science

1. Kshirsagar, Sadashiv Shankar. The problem of managerial personnel in public sector undertakings in India with special reference to the study of their attitudes and motivation. University of Delhi.

2. Subramanian. S. The working of the Public Service Commission in Madras from 1947-1967. Karnatak University.

Economics

Pandit. Hirday Nath. Effectiveness and financing of investment in Indian education 1950-51 to 1965-66. University of Delhi.

Commerce

Mahajan, Mangalmurti Prabhakar. The methodology of the two-tier system of co-operative housing finance in Maharashtra. University of Poona.

Management

Gujarathi. Ramdas Jagannath. Industrial development of Nasik District. University of Poona.

HUMANITIES

Linguistics

1. Bhaskara Rao, Peri. Kondekor Gadaba : A Dravidian language. University of Poona.

2. Patel, Usha Randhirbhai. A constrastive study of Gujarati-Hindi. University of Poona.

Literature

Sanskrit

1. Ghosh, Purabi. Sanskrita Chhanda-O-Tahar vichar. Visva-Bharati.

2. Joglekar, Samriti. Aacharya Bharat ke natya shastra ka sahitiyak evam sanskritik adhyayan. Indore University.

3. Kharwandikar, Deviprasad Khanderao. Haradatta, a critical study with special reference to his Padamanjari : A commentary on the Kasika. University of Poona.

4. Nagar, Usha. A critical study of the Sarasvatikanthabharana of Bhoja. University of Delhi.

5. Sukhbir Singh. Ashvaghosh-krit 'Sondarnand' ka samikshatmak adhyayan. Meerut University.

6. Verma, Nargis. The etymologies in the Satapatha Brahmana. University of Delhi.

Hindi

1. *Dhody, J.S. Vrindavanlal Verma: Vayaktitva evam* krititava. University of Rajasthan.

2. Gautam, Netra Pal. Reeti-sampradaya ke sandarbh mein Hindi-kavya mein reeti-vivechan. Meerut University.

3. Gupta, Saroj. Ramcharitmanas kee suktiyon ka vivechnatmak adhyayan. University of Rajasthan.

4. Pathak, Ram Naresh. Study of Hindi stotras with special reference to Vinaya Patrika of Tulsidas (1375-1700). Visva-Bharati.

5. Srirama Reddi, A. Application of aesthetics to Sumitranandan Pant's poetry. Andhra University.

6. Vaish, Rukmani. Kushallabh ke katha-sahitya ka loktatvik adhyayan. University of Rajasthan.

Arabic

Gulam Mohammed. A critical edition of Divan Syed Ali Masum. Osmania University.

Marathi

1. Jagtap, Anant Jayvant. Adhunik Marathi kaviteteel premache aari sondharyache savrup. University of Poona.

2. Upadhye, Tavanappa Parisa. Marathiteel Ramayare aari prakritateel Ramayare yancha tulnatmak abayas. Shivaji University.

Telugu

1. Ankaiah, V. The influence of the Gandhian philosophy on Telugu poetry. Andhra University.

2. Parabrahma Sastry, S.R. Philosophical poems in Telugu literature. Osmania University.

3. Ram Reddy, M. Evolution of poetic ideals in classical Telugu. Osmania University.

History

1. Banerjee, Phanindra Nath. Law and justice in Bengal (1765-1793). University of Burdwan.

2. Kathuria. R.P. A study of the life in the court of Rajasthan during 18th century. Bhopal University.

PERSONAL

1. **Shri N. A. Miabhoy** has taken over as the Vice-Chancellor of Gujarat University w.e.f. June 25, 1973.

2. **Shri A. K. Mustafy**, IAS, has been appointed Acting Vice-Chancellor of Lucknow University w.e.f. June 26, 1973.

3. **Dr. N.M. Swani**, has been appointed as the Director of Indian Institute of Technology, Delhi w.e.f. July 1, 1973.

4. **Dr. Amrik Singh**, Secretary, IUB, has taken over as Director of the South Delhi Campus of Delhi University w.e.f. July 2, 1973. The post has the status of a Pro-Vice-Chancellor.

5. **Shri T.V. Vyas**, has taken over as the Vice-Chancellor of *the Gujarat Ayurvedic University*, Jamnagar.

6. **Shri K. C. Bhattacharyya**, has been appointed the Registrar of Gauhati University.

BOOK NOTES

1. Anderson, Charles H. and Murray, John D., *Ed.* Professors : Work and life styles among academicians. Cambridge, Mass., Schenkman (c 1971) 350p.
An anthology that presents a vivid picture of the many dimensions of professorial life : occupational setting, the art of teaching, publishing and tenure, leisure behaviour, cultural taste, sociological marginality, professional community, ethnic affiliation, religious beliefs and practices, political activity, and ethical values.

2. Cosin, B.R., *Ed.* Education : Structure and society. Middlesex, Penguin, 1972. 303p.
In contrast to the conventional quantitative approach to the relationship between the economy, educational system and the wider society, Cosin's 'Education' examines not only some economic and political determinants of the educational system and society but also the content of education and its relevance to economic skills, techniques and knowledge. In its sociological context and attempt is made to sketch out ways of approaching the shape of political agencies involved in educational politics and policy.

3. Otten, C. Michael University authority and the student: The Barkeley experience. Berkeley, University of California Press, 1970. xviii, 222p.
Behind the clamour for reform by students and its suppression by administrators is the continuing debate concerning governance of universities. To Otten the division on university campuses is not over war and peace, poverty and racism, or capitalism and socialism; it concerns the democratization of organizational power, both within and outside the university.

4. Peers, Robert. Adult Education : A comparative study. ed. 3. London, Routledge and Kegan Paul, 1972. xvii, 389p.
A comprehensive study of the growth, organization and problems of adult education in England and Wales though there is also a substantial section dealing with other West European countries, the U.S.A., some Commonwealth countries, and the hitherto underdeveloped countries now entering upon a period of rapid change.

5. Psacharopoulos, G. Returns to education : An international comparison. Amsterdam, Elsevier, 1973. xiii, 216 p.
Volume 2 in a promising new series 'Studies on Education' it consolidates the data on returns to investment on education by collating 53 case studies in 32 countries. Econometric analyses have been employed to find existing regularities between the returns to education and other characteristics, such as, the brain drain, the distribution of earnings, levels and costs of education, and the case of substitution among different types of educated labour.

6. Qubain, Fahim I. Education and science in the Arab World. Baltimore, Johns Hopkins Press (c 1966) xxii, 539p.
This is a study of the training of scientists and technicians in the Arab world and the problems of confrontation with an older and eminent culture. Development of higher education and science training in this part of the world is explored and a study made of the factors behind this rapid expansion, the problems it has encountered and those it generated.

7. Roberts, Kenneth. From school to work : A study of the youth employment services. Newton, David & Charles (c 1971) 168p.
Attempts an appraisal of the Youth Employment Service in England that helps and advises young people leaving school to find their first job. Educational and economic developments that have influenced young people's vocational needs are examined, reforms outlined and evaluated.

8. Rudolph, Susanne Hoeber and Rudolph, Lloyd I., *Ed.* Education and politics in India : Studies in organization, society, and policy. Cambridge, Mass., Harvard University Press, 1972. x, 470p.
Explores the relationship between educational and political systems and indicates that the independence of education is related to three processes: politicization—the appropriation of education by politics; political influence—the use of political resources for educational purposes; and the attempt to realize the public interest through education.

9. Toffler, Alvin. Future shock. London, Bantam Books, 1970. 561p.
This is a book about what happens to people when they are overwhelmed by change, the process by which the future invades our lives. It concerns itself with the human side of tomorrow and is about the ways in which we adapt—or fail to adapt to the future.

10. Vaizey, John. Education. London, Macmillan (c 1971) 64p.
Forming part of the series 'Studies in contemporary Europe', 'Education' by Vaizey delineates its dominant place in social change and economic development. Education and the changes which have occurred in the educational system provide a major clue to the nature of European change in the last quarter-century.

CENTRAL INSTITUTE OF ENGLISH AND FOREIGN LANGUAGES HYDERABAD—500007

CORRESPONDENCE COURSE IN TEACHING ENGLISH

Applications are invited for admission to the one-year Correspondence Course leading to a 'Certificate in Teaching English", beginning 1st September, 1973. Only teachers with an M.A., in English, teaching English in schools/universities/training colleges/professional or technical institutions/defence establishments are eligible for this course. Only a limited number will be admitted to the course. For Prospectus and Application Form write to the Convener, Correspondence Courses Unit, Central Institute of English & Foreign Languages, Hyderabad-500007, enclosing a crossed postal order for Rs. 2/- drawn in favour of the Director, CIEFL and a self-addressed stamped (35 paise) envelope of size 23x10 cm. The last date for receipt of completed application forms is *31st July, 1973.*

Indian Institute of Technology

P.O. I.I.T., POWAI, BOMBAY-76

Advertisement No. 753

Applications are invited for the post of Medical Officers in the Institute's Hospital at this Institute.

MEDICAL OFFICER

Qualification & Experience : M.B.B.S. Degree of recognised University with at least 3 years experience as House Physician and Medical Registrar in a General Hospital or equivalent experience in similar status, as well as supervision of Pathalogical/X-ray Laboratories.

Age : Not more than 40 years.

Pay Scale : Rs. 350-25-500-30-590-EB-30-830-35-900 plus non-practising allowance at the rate of 33 1/3% of pay subject to a minimum of Rs. 150/- per month plus other allowances such as D.A., C.C.A. etc as admissible under the rules.

Applications should be made on the prescribed forms obtainable free of charge from the Registrar of the Institute by sending a *self addressed* envelope of 25 cm x 10 cm size.

The completed application together with a crossed Indian Postal Order of the Value of Rs. 3.00 (Rs. 0.75 for candidates belonging to Scheduled caste and Scheduled tribe) and the requisite certificates should reach the Registrar, Indian Institute of Technology, P.O. I.I.T., Powai, Bombay-400076 by *10th July, 1973.*

Indian Institute of Technology

P.O. I.I.T., POWAI, BOMBAY-76

Advertisement No. 754

Applications are invited for faculty positions in the Department of Humanities & Social Sciences at this Institute. Openings are available in English, Philosophy, Economics (including Econometrics), Sociology, Psychology, Political Science, Environmental Science (Social-Psychological aspects), History, and Management Science at the following ranks and scales:

PROFESSOR	: Rs. 1100-50-1300-60-1600
ASSOCIATTE PROFESSOR	: Rs. 1100-50-1300
ASSISTANT PROFESSOR	: Rs. 700-50-1250
LECTURER	: Rs. 400-40-800-50-950

Besides salary, all posts carry allowances according to Institute rules. Higher initial salary is admissible to specially qualified and deserving candidates. Accommodation is provided on the Institute Campus with 10% of the salary as licence fee.

The department faculty teaches special courses in humanities and behavioral sciences to engineering Undergraduate and Graduate students and also undertakes to guide Ph. D. research in the behavioral sciences for which scholars are selected and paid scholarships. *Preference will be given to candidates having interests in the above mentioned disciplines in their relationship to technology, science, industrialization, social change, modernization, and the like.*

Qualifications: Applicants should have excellent academic record, an interdisciplinary approach and aptitude for developing appropriate courses suitable for a technology and science institute. For higher positions, a Ph. D. in a basic social science from an Indian or Foreign University, research publications of recognized merit, outstanding scholarship and eminence in the concerned field are required.

Applications by persons in India should be made on the *prescribed forms* obtainable free of charge from the Registrar of the Institute by sending a *self-addressed* envelope of 25 cm x 10 cm size. Candidates called for interview will be paid Second Class Railway fare from the place of residence to Bombay and back by the shortest route.

Persons abroad may apply on plain paper (three copies) giving an account of their academic and professional records, classes at examinations, grades in courses, lists and if possible copies of research publications, fields of specialization, etc. and names with addresses of *three persons* who can speak for the applicant's scholastic abilities and personality.

Applications should reach the Registrar, Indian Institute of Technology, P.O. I.I.T., Powai, Bombay 400076 *by 10-7-1973.*

Classified Ads.

ALIGARH MUSLIM UNIVERSITY ALIGARH

Admission Notice No. V.
1973-74

Applications are invited for admission to Diploma in Ophthalmology and M.S. (Ophthalmology) courses at the Institute of Ophthalmology, J.N. Medical College of the University, on prescribed form obtainable together with Information Bulletin free of cost, from the Registrar, Aligarh Muslim University, Aligarh on furnishing a self-addressed 90 paise stamped envelope of size 28 x 12 c.m. Completed admission forms accompanied by a Crossed Postal Order of Rs. 10/- non-refundable (payable in the name of Treasurer, AMU, Aligarh) on account of application fee should reach the Deputy Registrar (Academic) AMU, Aligarh, not later than 15th July, 1973.

Candidates selected for admission will be informed as soon as possible and for this purpose a self-addressed non-stamped envelope be sent with the completed form. No candidate should leave for Aligarh without receiving the intimation for admission.

P. V. GEORGE
REGISTRAR

PUNJABI UNIVERSITY, PATIALA

(Advertisement No. 16/73)

Applications are invited for appointment to the following posts at the Punjabi University, Patiala :—

I. DEPARTMENT OF MATHEMATICS

Professor (Rs. 1100-50-1300/60-1600)

(a) A first or second class Master's Degree in Mathematics of an Indian University or an equivalent qualification of a foreign University.

(b) Either a research degree of a Doctorate standard or published work of a high standard.

(c) About 10 years' experience of research or teaching post graduate classes at a University or college.

(d) Candidates having research activities in the fields of Analysis including Functional Analysis, Mechanics, Modern Algebra and Topology are desirable.

Preference would be given to candidates with proven ability to guide research.

DEPARTMENT OF CHEMISTRY

Professor (Rs. 1100-50-1300/60-1600)

(a) A first or second class Master's degree in Chemistry of an Indian University or an equivalent qualification of a foreign University, with specialisation in any of the disciplines of Chemistry.

(b) Either a research degree of a Doctorate standard or published work of a high standard.

(c) About 10 years experience of research or teaching post—graduate classes at a University or College.

(d) Candidates should have independent research publications and experience of having successfully guided a candidates for Ph.D. degree.

CHAIR IN SUFISM

Professor (Rs. 1100-50-1300/60-1600)

(a) A first class Master's Degree in Persian and Punjabi with good knowledge of Urdu and Hindi.

(b) Knowledge of Arabic and/or Sanskrit desirable.

(c) (i) About 10 years' teaching experience with post-graduate classes in Persian and Punjabi.

(ii) Published work and research articles on mysticism with special reference to Sufistic and Gurmat traditions.

(iii) Experience of guiding research work and editing literary Magazines.

DEPARTMENT OF BUSINESS MANAGEMENT

Readers (Two) One in the Personnel and the other in the Production Management area) (Rs. 700-50-1000/50-1250).

For the Post in the Personnel Management Area :

Atleast a second class Master's degree with experience as Personnel Officer in a responsible staff position in large concern for 5 years. In case the candidate has worked as Training Officer in the Personnel and Industrial field, he can also apply provided his total industrial experience is 5 years and he has worked on the training job for two years in a similar concern. In case the candidate is M.B.A. he should be 1st class and should have two years experience of working or teaching in these areas. A person with M.B.A. qualifications would be preferred.

For the Post in the Production Management Area :

The candidate should be a 1st class M.B.A. with specialization in this subject and should possess two years of teaching or working experience in this subject or he should be a Mechanical or Chemical or Production Engineer with M. Tech. qualifications from a recognized Institute/University and should have worked in a Production job for atleast 3 years in a responsible planning job.

DEPARTMENT OF HUMAN BIOLOGY

Professor (Rs. 1100-50-1300/60-1600)

(a) A First or Second Class Master's Degree in Human Biology/Physical Anthropology of an Indian University or an equivalent qualification of a foreign University.

(b) Either a Research Degree of a Doctorate standard or published work of a high standard.

(c) About 10 years' experience of research or teaching post-graduate classes at a University or college.

(d) Candidates who are well-versed with recent advances in Human Biology and those having special training in Human Biology would be preferred.

Assistant Professor (Rs. 450-30-660-EB-40-1100 plus N.P.A. as admissible under Punjab Government rules).

The candidate must be atleast M.S./M.D. in Anatomy/Physiology from any recognised university with atleast three years' experience of teaching/research in Anatomy or Physiology. Preference would be given to those who may be able to teach both Anatomy and Physiology.

Museum Curator (Rs. 400-40-800/50-950).

Atleast a second class Master's degree in Human Biology/Anthropology from a recognised university and at least a degree or diploma in Museology. The candidate must possess some experience of setting up a museum relating to Human Biology. Preference would be given to those having Ph.D. degree or published research work of an equivalent standard.

DEPARTMENT OF TAMIL STUDIES

Professor (Rs. 1100-50-1300/60-1600)

(a) A first or second class Master's degree in Tamil Language and Literature of an Indian University or an equivalent qualification of a foreign university.

(b) Either a research degree of a doctorate standard or published work of a high standard.

(c) About 10 years' experience of research or teaching post-graduate classes at a university or college.

DEPARTMENT OF ENGLISH

Reader (Rs. 700-50-1000/50-1250)

(a) A first or second class Master's degree in English of an Indian University or an equivalent qualification of a foreign University.

(b) Either a research degree of a Doctorate standard or published work of a high standard.

(c) About 5 years' experience of research or teaching post-graduate classes at a University or college.

(d) Evidence of work and experience in any of the following fields of study desirable.

Indian Writing in English, Literary Criticism, 20th Century English Literature.

Lecturer (Rs. 400-40-800/50-950).

(a) A first or second class Master's Degree in English Language and General Linguistics of an Indian University or an equivalent qualification of a foreign university.

(b) Atleast one year's experience of teaching Linguistics or research experience in the case of First class M.A.'s and atleast 3 years' experience of teaching Linguistics or research experience or having some research work to one's credit in the case of Second class M.A.'s.

Research Assistant (Rs. 300-25-350-EB-25-400-30-610-EB-30-640-40-800)

Atleast a second class Master's degree in English preferably with some teaching or research experience.

DIRECTORATE OF CORRESPONDENCE COURSES

Assistant Director (Economics, Hindi & Mathematics) (Rs. 400-40-800/50-950).

(a) Atleast a Second Class Master's degree in Economics/Hindi/Math of an Indian University or an equivalent qualification of a foreign university.

(b) About five years' teaching experience in a University or college.

Instructor (Political Science) Rs. 350-25-400/30-640-40-800).

(a) At least a second class Master's degree in Political Science of an Indian university.

(b) About two years' teaching experience in a university or college.

Persons with higher academic qualifications & experience of Correspondence Courses would be preferred.

DEPARTMENT OF RELIGIOUS STUDIES

Lecturer in Jain Studies (Rs. 400-40-800/50-950).

(a) Atleast a second class Master's degree in Religious Studies Philosophy/Prakrit/Sanskrit/Ancient Indian History with specialization in Jain Religion/Philosophy. Those with a Ph.D. and/or with publications of outstanding merit would be given preference. Familiarity with major world Religions and *proficiency in Sanskrit and Prakrit* essential.

DEPARTMENT OF PHYSICAL EDUCATION

Lady D.P.E. (Rs. 400-40-800/50-950).

(a) Atleast a second class Master's degree (M.A./M.Ed./M.P. Ed.) in Physical Education. About 5 years experience as D.P.E. in college or University.

(b) Candidates who have represented a university in the Inter-Varsity competition in any game or have coaching Diploma in any game from NIS, would be given preference.

DEPARTMENT OF DEFENCE STUDIES

Instructor (Rs. 350-25-400-EB-30-640-40-800).

Atleast a second class Master's degree in Military Studies/Military Science/Defence Studies with specialization in Military History, preferably with some teaching/research experience.

OR

Should be a graduate of Defence Services Staff College and should have held the substantive rank of Captain in the army with some teaching experience.

DEPARTMENT OF PHYSICS

Instructor (Rs 350-25-400/30-640-40-800).

Candidates should be atleast second class M.Sc. (Physics) with sufficient *teaching/Research experience in* Electronics. Preference would be given to those with specialized training in T.V. Engineering.

General Administration Legal Assistant (Rs. 400-40-800-EB-50-950).

Candidates should be an experienced Law Graduate or retired person from Legal Rememberancer's office or having sufficient experience in some other Judicial capacity.

Museum Curator for Punjabi Bhawan (Rs. 350-25-400-EB-30-640-40-800).

Atleast a Master's degree in Fine Art of an Indian University or an equivalent qualification of a foreign University, possessing some experience in a Government Museum and Art Gallery in a responsible position. Higher start to a really competant person.

University Research Scholarship (One) (Rs. 300/- p.m. fixed) in Mathematics for a period of 2 years.

Candidate should be atleast a second class M.A./M.Sc. in the pertinent subject with atleast one year's Teaching/Research experience after obtaining the Master's degree, provided that the condition of experience may be relaxed in the case of first class M.A.'s/M.Sc.'s. Provided futher that the candidates with atleast 55% marks both in B.A./B.Sc and M.A./M.Sc. would also be considered in case no first class M.A./M.Sc. is available.

Candidate should have studied any four of the following topics:—

Modern Algebra, Topology, Functional analysis, continuum/Mechanics, Measure Theory, Theory of Functions.

DEPARTMENT OF ANTHROPOLOGICAL LINGUISTICS

Research Assistant (Rs. 300-25-350-EB-25-400-30-610-EB-30-640-40-800).

At least a second class Master's degree *in any* language or Linguistics with specialization in the structural Analysis of folklore.

GENERAL FOR ALL

Qualifications and experience are relaxable *in the case of candidates, otherwise* found suitable for the post by the *Selection Committee. Higher start within* the grade admissible depending upon the ability and experience of the candidates.

House rent and Dearness allowances, *Provident Fund* and *Medical facilities*, according to University rules.

Applications, complete in all respects, on the prescribed forms obtainable on request from the Deputy Registrar *(Administration) by sending a* self-addressed envelope of the size of 23x10 cms. stamped with 20 paise postage, should rearch the University by 14-7-73 at the latest. *Incomplete applications* not accompanied with attested copies of the certificates and testimonials shall not be entertained. Separate application form should be submitted for each post.

Persons already *in service* should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before due date and regular application through proper channel by 20-7-73.

REGISTRAR

SARDAR PATEL UNIVERSITY VALLABH VIDYANAGAR (Gujarat State)

Notification No. EST/2 (1973-74)

Applications in the prescribed form available from the University Office on payment of Re. 1/- *in cash* or by M.O. are invited for the Post of Reader in Electronics for the Post-Graduate Department of Physics in the grade of Rs. 700-50-1250+D.A. *so as to* reach the undersigned on or before 20-7-1973.

Details regarding the Qualifications, Experience etc. will be supplied alongwith the application forms.

K. A. AMIN
REGISTRAR

Vallabh Vidyanagar
Date : 19-6-1973.

ANDHRA UNIVERSITY WALTAIR

Applications in the prescribed form are invited for the following posts so as to reach the Registrar on or/before 10-7-73. Each application shall be accompanied by a Crossed Indian Postal Order for Rs. 10/- or a Bank receipt remitting the amount in the State Bank of India.

1. Professor of Human Genetics and Physical Anthropology — 1. Scale : Rs. 1100-50-1300-60-1600.
2. Professor of Geography—1. Scale: Rs. 1100-50-1300-60-1600.
3. Professor of Statistics—1. Scale : Rs. 1100-50-1300-60-1600.
4. Professor of Economics—1. Scale: Rs. 1100-50-1300-60-1600.
5. Reader in Statistics—1. Scale Rs. 700-50-1250.
6. Reader in Human Genetics & Physical Anthropology—1. Scale : Rs. 700-50-1250.
7. Reader *in* Economics—2. Scale : Rs. 700-50-1250.
8. Lecturer in Human Genetics & Physical Anthropology—1. Scale : Rs. 400-40-800-50-950.
9. Lecturer in Geography—1. Scale: Rs. 400-40-800-50-950.
10. Lecturer in Social Work—1. Scale: Rs. 400-40-800-50-950.
11. Lecturer in Economics—3. Scale: Rs. 400-40-800-50-950.
12. Lecturer in Commerce—1. Scale: Rs. 400-40-800-50-950
13. *Cartographic* Assistant—1. Scale: Rs. 300-8-380-10-600.

Qualifications

(1) *Professors and Readers*

Essential : 1. A first or high second class Master's Degree of an Indian University or an equivalent qualification from a foreign University in the subject.

2. A research degree of Doctorate Standard or published work of a high standard in the subject.

3. Experience of teaching Honours or Post-graduate classes for a period of ten years for Professors/five years for Readers, and experience of guiding research for both the posts.

Note : For the teaching posts in Human Genetics & Physical Anthropology, the required degree should be in Genetics/Physical Anthropology with research in Human Genetics/Physical Anthropology.

Preferential

For Professor of Economics : Specialisation in Economic Theory, Economic Development, Agricultural Economic or Public Economics.

Knowledge of Econometrics and experience in empirical investigations.

For Reader in Statistics : Specialisation in Demography and/or Biostatistics.

(2) *Lecturer* :

Essential : 1. A first or high second class Master's Degree of an Indian University or an equivalent qualification of a foreign University.

Preferential : For Lecturer in Social Work: Specialisation in Community Development or experience as Field work Supervisor.

(3) *Cartographic Assistant*

Essential : Inter Diploma in Architecture from a recognised Institute or University with atleast three years experience in Map Drawing and analysis.

OR

I.T.I. Draftsman Diploma with atleast 3 years experience in Map Drawing and analysis.

OR

Graduate in Geography of a recognised University with atleast 4 years experience in map analysis and the preparation of maps and diagrams. Knowledge *and experience in the use of topographical* and thematic maps will be an additional qualification.

Requisitions for the application forms and other details may be made to Sri P. Hanumantha Rao, Deputy Registrar, Andhra University, Waltair, accompanied by a self addressed and stamped envelope and a State Bank Challan or a Crossed Indian Postal Order for one Rupee. The University reserves the right to fill or not to fill the posts. The cover containing the application should be superscribed as "Application for appointment to the post of. . . .".

(M. GOPALAKRISHNA REDDY)
REGISTRAR

UNIVERSITY OF UDAIPUR
UDAIPUR

ADMISSION NOTICE
1973-74 SESSION

Applications are invited for admission to various programmes (under-graduate and post-graduate) of the colleges of the University.

I. Colleges of Agriculture : (Udaipur Campus) :

1. Ph.D. (by course work) : (*i*) Entomology, (*ii*) Plant Breeding and Genetics, (*iii*) Plant Pathology, (*iv*) Agronomy, and (*v*) Soil Science.

2. M.Sc. (Ag.) : (*i*) Agronomy, (*ii*) Entomology, (*iii*) Horticulture, (*iv*) Plant Breeding and Genetics, (*v*) Plant Pathology, (*vi*) Soil Science, (*vii*) Animal Husbandry and (*viii*) Dairy Science.

3. Pre-Professional Part I & II (Jobner Campus) : 1. M.Sc. (Ag.) : (*i*) Agricultural Economics, (*ii*) Agricultural Extension, (*iii*) Soil and Water Conservation, and (*iv*) Plant Protection.

2. Pre-Professional Part I & II.

II. College of Technology & Agricultural Engineering : Udaipur

1. B.E. (Ag.) : 5 Year integrated course.

III. College of Home Science : Udaipur

1. B.Sc. (Home Science) : 4 Year integrated course.

IV. School of Basic Sciences and Humanities : Udaipur

1. M.Sc.: (*i*) Physics, (*ii*) Chemistry, (*iii*) Botany, (*iv*) Mathematics, and (*v*) Zoology.

2. M.Com. : (*i*) Accountancy and Statistics, and (*ii*) Business Administration.

3. M.A. : (*i*) Drawing & Painting, (*ii*) Economics, (*iii*) English, (*iv*) Geography, (*v*) Hindi, (*vi*) History, (*vii*) Philosophy, (*viii*) Political Science, (*ix*) Psychology, (*x*) Sanskrit, (*xi*) Sociology, and (*xii*) Urdu.

4. Three Year Degree Course (Arts/Sciences/Commerce).

V. Department of Law

1. LL.M.

2. LL.B. : Three Year Course.

3. Diploma in Labour Law, Labour Welfare and Personnel Management.

Note : Eligibility qualifications, and other requirements for admission to the under-graduate and post-graduate programmes can be ascertained from the Information Bulletin supplied with the Application Form.

The Information Bulletin alongwith the Admission Form obtainable from the *respective Deans of Colleges, Director* of School and Head of Law Department on payment of Rs. 2/- (for Agricultural Wing) and Rs. 2.50 for local and Rs. 3/- for persons outside Udaipur in case of School of Basic Sciences & Humanities and Law Department, Udaipur by sending a crossed Indian Postal Order to the Deans/Director and Head of Colleges/School and Department concerned.

Last date of receipt of applications in the offices of the Deans/Director, Head is as given below :

1. Colleges of Agriculture, College of Agricultural Engg. & College of Home Science : July 2, 1973.

2. School of Basic Sciences & Humanities, Law Department : July 14, 1973.

REGISTRAR

BERHAMPUR UNIVERSITY
BERHAMPUR-7 (GANJAM)
ORISSA

No. 3340/Admn/Ge-I-52/73

Dated the 8th June. 1973

ADVERTISEMENT

Applications are invited in the prescribed form (5 copies) obtainable from the Office of the undersigned on payment of an application fee of Rs. 1.50 paise in person or by Bank draft, on the State Bank of India, Rangailunda, or by Money Order in favour of the Registrar, Berhampur University along with a self addressed envelope measuring *22x10 CMs. affixed with stamps worth* Rs. 0.80 paise for the temporary post of *Development Officer* of this University in the scale of pay of Rs. 700-50-1250/- plus usual Dearness allowance as admissible by the University from time to time.

Qualification and experience

(i) The candidate shall have at least a second class Master's Degree with 48% marks or a degree in engineering.

(ii) The candidate shall have 8 years of *experience in teaching and/or planning* and administration.

The applications duly filled in along with the attested true copies of all Certificates and testimonials should reach the undersigned on or before 9-7-73. Applications received after the due date will not be entertained.

Candidates who are in service should apply through proper channel.

The prescribed period of experience for the post will be calculated up to the last date of receipt of applications.

Sd/- R. C. RAJGURU
REGISTRAR

UNIVERSITY OF UDAIPUR
UDAIPUR

ADMISSION NOTICE
1973—74 SESSION

Applications are invited by the 10th of July, 1973 for the admission to the following courses (Undergraduate and Post-graduate) of the College of Veterinary and Animal Science, Bikaner:

(1) B.V.Sc. & A.H.—4 years duration

(2) *M.V.Sc. in:*

(i) Bacteriology

(ii) Parasitology

(iii) Animal Gynaecology and Obstetrics

(iv) Medicine

Note: Eligibility qualifications, and other requirements for admission to the under-graduate and post-graduate programmes can be ascertained from the Information Bulletin.

The Information Bulletin alongwith the admission form can be obtained from the office of the Dean, College of Veterinary and Animal Science, Bikaner on payment of Rs. 2/- in the form of Crossed Indian Postal Order in the name of the Dean, *College of Veterinary* & Animal Science, Bikaner.

REGISTRAR

(*Continued from page 9*)

Applications for the post of Director, Physical Education should be in the prescribed form, which can be had from the Registrar's office (Estab. IV Section) either personally or by sending a self-addressed envelope and stamps worth Rs. 1.35 *to cover postage* and for the other posts on plain paper.

Applications stating age, qualifications, experience etc. accompanied by attested copies or certificates thereof and of recent testimonials should reach the Registrar, *University of Delhi*, Delhi-7 not later than 25th July, 1973.

Note: (a) Relaxation of qualifications, experience and grant of higher initial pay in exceptionally deserving cases may be considered in respect of all posts.

(b) Canvassing in any form by or on behalf of the candidates will disqualify.

(c) Employed persons should send their applications through proper channel.

K. P. GOVIL
REGISTRAR

BASIC LITERATURE COMPETITION IN INDIAN LANGUAGES

WIN Rs. 1,000

Entries in the form of manuscripts/books (including drama) on any of the subjects listed below are invited from Indian authors for the 10th All-India Basic Literature Competition.

SUBJECTS

- Increasing Job Opportunities Through Integrated Rural Development.
- The Problem of Under-nourishment in Rural Areas.
- Local Development Programme Through Planning at Block and Village Levels.
- How to Ensure Growth of Panchayati Raj Institutions. (Give a comparative study of the success of the Panchayati Raj System in some States and its slow progress in others.)
- Success Stories of Innovations Adopted by Rural Communities in Solving Local Problems.
- Building up of Leadership in Rural Communities (Cite success stories.)
- Better Sanitation for Happier Villages.
- Marketing and Processing of Agricultural Produce—Co-operative Approach.
- Role of Co-operatives in the Development of Tribal Areas.
- Role of Co-operatives in the Service of Weaker Sections.
- Co-operatives in Aid of Agricultural Production.
- Youth in the Field of Co-operation.
- White Revolution Through Co-operatives (Dairy Co-operatives).
- Role of Co-operatives in Public Distribution System of Foodgrains and other Essential Commodities.

LANGUAGES

ASSAMESE • BENGALI • GUJARATI • HINDI • KANNADA • KASHMIRI
MALAYALAM • MARATHI • ORIYA • PUNJABI • SINDHI • TAMIL • TELUGU • URDU

STYLE

The subject-matter should be dealt with in simple and lucid style which can be easily understood by and appeals to the workers connected with the Community Development, Panchayati Raj and Co-operation Programmes for whom this literature is meant.

SIZE

The manuscript/book should contain approximately 10,000 words. It should be suitably and adequately illustrated.

PRIZES

A cash prize of Rs. 1,000 will be awarded to the entry adjudged best in each language.

COPYRIGHT

Copyright of the prize-winning entries shall be transferred to the Government of India, free from all encumbrances, in lieu of which an additional sum of Rs. 1,000 will be paid to the author.

HOW TO ENTER

Entries (in duplicate) accompanied by a crossed Indian Postal Order for Rs. 3 for each entry, payable to 'The Departments of Community Development and Co-operation' at New Delhi Post Office should be sent to the undermentioned address by Registered Post (acknowledgement due). Detailed particulars regarding rules and instructions about the Competition can also be obtained from the undermentioned address :

**Director (Basic Literature),
Ministry of Agriculture,
Government of India,
(Departments of Community
Development & Cooperation),
Krishi Bhavan,
New Delhi-110001.**

LAST DATE FOR RECEIPT OF ENTRIES : 16.8.73

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Indian School of Mines
Dhanbad-826004

Continuing Education Courses

Indian School of Mines, a deemed University under the University Grants Commission Act, announces the following continuing education courses to be offered by its Department of Mining during August-September, 1973 for personnel of the Mining Industry:

Course Description (and max. number of participants)	*Duration*	*Programme*	*Course Coordinator*
(1) Basic and Applied Rock Mechanics (20)	August 28 to September 10 (Full-time Residential)	Rs. 400-00*	Prof. A.K. Ghose
(2) Intensive course on Mine Ventilation (20)	September 12 to Sept. 18 (Full-time Residential)	Rs. 250-00*	Shri N.K. Patnaik
(3) Mine Management, Legislation and General Safety	September 3 to Sept. 21 (Evening only)	Rs. 100-00	Shri P. R. Prasad

*The Fee for courses Nos. (1) and (2) includes boarding and lodging at the Indian School of Mines Campus. All course fees include cost of course material.

For further details, please contact Head of the Department of Mining, Indian School of Mines, Dhanbad-826004.

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UNIVERSITY NEWS

A Monthly Chronicle of Higher Education

Vol. XI — No. 8 — August 1973

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Opinions expressed in the articles and reviews are individual and do not necessarily reflect the policies of the Board.

Editor : Anjni Kumar

Science Enrolments

The recent fall in the enrolment of science students in the colleges of Punjab is alarming. During the past two years not only the schools have shown a decrease of 50%, the admissions even at the pre-university level courses have declined from 38% to 23%. What is true of Punjab may be more so far the colleges in other parts of the country.

Yet there is no denying the fact that the country needs more science and technological knowhow. Technology has a vital role to play in the economic and social development of the country. The study of science apart from its job potential is necessary to inculcate in the young minds, a scientific approach to life. Science and technology are not quite separate. Science is pursued for the sake of knowledge and insight, while technology is essentially applied science. It is a way of doing things based on scientific knowledge coupled with experience to suit specific conditions. The green revolution in the country is an example.

We have a long tradition of the pursuit of pure sciences. The use of technology for national building however is a post-independence phenomena. During the fifties, the Nehru-Bhatnagar collaboration led to a strong equation between political and scientific leadership of the country. A number of national laboratories were established. The pace of agricultural, atomic, medical and defence research was accelerated. Institutes of technology and a number of research departments in the universities were founded. The science policy of the Government of India formulated in 1958 recognised the importance of science and technology. The National Committee on Science and Technology has been recently constituted to prepare a science and technology plan to match the needs of national economic and industrial growth plans. After a sustained effort over the years, the conntry has been able to build the necessary infra structure for the development of science and technology in many major areas. We have accumulated scientific knowledge, trained technical manpower. But the indigenous technology has not been harnessed to serve the society and to catalyse the industrial and economic growth.

At present there is a mis-match between production and the need and type of graduates required. The industries need practical and experienced people but they do not offer ample facilities for practical training either to the students or to the teachers. Naturally this results in a drift towards unaccountable academic research. The universities too have to re-act quickly by modernising their curricula and uptodating their courses. There is a need for allowing greater flexibility in the choice and combination of different types of courses. An enviroment has to be created for innovation and change in the present day static and tradition ridden society.

OPEN UNIVERSITY

Amrik Singh

MASS higher education is a living issue in many of the advanced countries of the world. As in respect of several other things, the situation reached an extreme point in the USA in the last decade. When the decade closed, more than 40% of the relevant age group of students were to be found in colleges. The situation has been changing somewhat since then. But making higher education available to a very substantial proportion of the population is an issue that continues to generate debate and discussion in that country.

In the UK the problem was approached from another angle. There was concern for the underprivileged and the disadvantaged. It was felt that, even though higher education was available to a much larger proportion of population than before, a certain category of students was still stubbornly left out. The institutional outcome of this concern was establishment of the Open University, which by all accounts has already become a highly successful academic enterprise. It has broken new ground in a number of fields and its achievements have excited the imagination of several countries. Thailand has already established an Open University. There should be nothing surprising, therefore, that India, too, is considering the proposition seriously.

To make higher education available more easily before and to sections of population untouched by it so far is a proposition that deserves to be applauded. For far too long has higher education been treated as a close preserve of the elite. To bring it within reach of those who have been excluded from it is, therefore, an act of social justice and no one in good conscience can, or indeed should, have reservations about the establishment of an Open University in India. There are several things more that one can say in this vein. But those are being said so often, and from so many platforms, that it would be a waste of effort to enlarge on them any further. What is more pertinent is to discuss, in concrete detail, those aspects of this new experiment which, if left unexamined, can most definitely undermine the chances of its eventual success. The history of our social and economic decision making in recent years is littered with instances where, in the absence of proper safeguards and suitable corrective action, even the best of policies have led to poor, and some times disastrous results. Let this not happen in the case of the Open University, too.

While there is a good deal of talk about the use of radio and television for the purpose, it seems safe to say that most of it is either romantic or naive in character. There is something exciting about the use of the mass media. Whenever people talk about it they get carried away by their talk. In a country as poor as ours, to talk of the use of television is nothing but tall talk. It will be decades before television becomes such an accessible thing as to reach a wide mass of people. To talk of it today with a glow in one's eyes is, therefore, to talk of something that is, strictly speaking, not relevant to our situation.

Radio is a different proposition, however, and it can be used in a purposeful way. For those of us who swear by the use of the mass media, it would be a sobering thought to remember that even in the case of the Open University, radio and television programmes do not constitute, so far, more than 10% of the total instructional effort. It must be added in fairness, however, that these constitute an integral part of the system of instruction. The key ingredient in the system of instruction adopted by the

Open University is the written word and not the spoken word. The point of saying all this is that, even after the mass media are used to the full, the basic educational technology to be used would be the same as is now being used for correspondence courses. When the concept of an Open University in India is discussed, it is important, therefore, to have some idea of how correspondence courses are being conductive in the country today. For, properly speaking, the Open University would be the next stage of development of informal education, which today is being conducted in a dozen Indian universities.

Correspondence education is about a decade old in India. The total enrolment at the dozen or so universities today does not exceed 50,000 students. Considering that the total university enrolment today is over 3 million students, this is a remarkably low figure. The preferred method still remains the one of joining a college and going through several years of instruction, followed by an examination at the end. Those who are unable to get into college take up correspondence education. They seem to have no other choice or option. The only other choice open to them is evening education. Some people do not prefer that, or find it unsuitable, and, therefore, take up correspondence education. The Open University, if and when it gets established, will have to reckon with this important sociological fact.

Why this should be so is not so difficult to understand. So far correspondence education has been treated as the Cindrella of Indian education. Neither the policy-makers nor those entrusted with the responsibility of running it, regard it as a pleasant or welcome job. What is worse, it has been also treated as the milch cow of Indian education. In approximately one decade, the university with the longest experience of correspondence education in the country has accumulated more than 2 million rupees as surplus. Several other universities are earning a couple of hundred thousand rupees every year from this activity. Even though the UGC has sactioned grants for these universities, it has not been possible for them to utilise them. It could have been utilised only if there was a deficit. In almost every case, there has been a surplus and so the UGC grants have remained unutilised.

How did these various universities accumulate the surpluses? The question is very pertinent and may be answered briefly. To get lessons prepared and printed and in large numbers is not such an expensive undertaking. In fact, larger numbers only means more expense on printing and despatch and little else. The real expense is on the correction and return of response sheets from the student. Every response sheet requires something like 20 minutes of concentrated work by a teacher. The nature of the work is fairly exacting and it is not possible to correct more than 20-30 response sheets during the day. A large number of teachers have, therefore, to be employed to attend to this work. Not only that, if in a given subject the same teacher corrects the response sheets of the same student week after week, he can watch his progress with a certain measure of intimate knowledge. He can also judge for himself how the student is learning from his mistake and how quickly or slowly he is improving in his grasp of the subject. In plain words, the essence of the correspondence method of education lies in two things. One is the quality of lesson writing and the extent to which it is supplemented by radio instruction. The second element is the honesty, seriousness and regularity with which students return their response sheets and how these are returned to them by their teachers.

In both these respects, the situation in almost every university conducting correspondence courses is appalling. The quantity of lesson writing is both poor and uneven. Some lessons are good, some can be described as acceptable, but the majority of them are sub-standard. At a joint seminar convened by the Indian Universities Association of Continuing Education (IUACE) and the University of Mysore in October, 1972, lessons prepared in different subjects by various universities were exhibited. One had only to glance through them to see how shockingly poor most of them were, both in terms of content and presentation. Most lessons appeared to be written by amateurs, who had still to learn the elements of their job. The payments made by various universities ranges from Rs 25 to Rs 100 per lesson. One has to be an unrepentant optimist to believe that at this rate of remuneration anything better can be expected.

It may not be out of place to mention in passing that, in the case of the Open University in the UK, within the very first year, they were able to produce more than 30 books. Each one of these books was a collection of lessons arranged in the ascending order of complexity. That these books have become immensely popular and are being brought enthusiastically by other students in the UK as well as in other countries is clear testimony to their excellent quality.

When the total number of lessons sent to students and the percentage of response sheets received back are compared with each other, the facts are disconcerting beyond belief. Let the facts speak for themselves. In regard to Delhi University, which has the largest enrolment of correspondence students and has the longest experience with them, the authenticated facts are as follows:—

Year	Percentage of response sheets received back
1964-65	22.14%
1965-66	23. 6%
1966-67	19. 5%
1967-68	10. 7%
1968-69	8. 5%
1969-70	8. 3%
1970-71	7. 9%
1971-72	7. 6%
1972-73	5. 8%

Two things become clear from this statement. Even at its best, the percentage was never more than one-quarter of the total enrolment. This means that the rest of the students meely enroled themselves so as to receive the lessons and then sat for the examination. It can be said this is as legitimate a form of instruction as any other. If that be so, why all this talk of correspondence education or the Open University? This, however, is an issue that requires to be discussed separately and need not be dilated upon here.

The second thing to be noted in this connection is that the percentage of those returning the response sheets has been declining. Today not even 6 students out of the 100 enrolled return their response sheets. It can be argued that returning of response sheets is not all that vital. In fact, quite some people wish to explain away this awkward fact use this argument. It requires no effort to show that this is a specious argument. Indeed, at this rate, there is hardly any aspect of the academic drill which cannot be described as unimportant. What does it matter if lessons are poorly written? What does it matter if in terms of presentation they do not compensate for the absence of the teacher? How does it matter if a student cannot have access to books or to his teachers or say learn from his fellow students? All that seems to matter is that a student should be able to sit in an examination and get some kind of a score. Whether there is any relationship between his ability and his performance is a question that one does not even stop to ask. This is moving in the direction of academic nihilism, to say the least, and the country is not likely to profit by it.

In addition to these two important elements of correspondence instruction, about which the UK Open University has steadily and consistently taken particular care, there is yet another element which formed the bedrock of its planning. The whole country was divided up into a dozen regions so as to ensure proper academic control and something like 300 study centres were established all over the country. (Considering the size of our country, the corresponding number of study centres would be something like 1,00,000.) Mostly these were located in existing educational institution and were kept open in the evening and on holidays. Each one of them was well equipped with all relevant correspondence materials, publications, recordings of all radio and television programmes and equipment for them and every other facility which might be expected. At these study centres, every student is expected to meet his counsellor or correspondence teacher once a fortnight. Indeed, no tutor is required to handle more than 20 students at a time. Not only this, every foundation course student is required to attend a summer school programme for one week, so that he gets properly oriented. While in the formal sense, the Open University has certainly dispensed with the system of a teacher lecturing to his students, in truth a number of substitutes have been devised in combination with each other so as to ensure that the stimulating touch of the teacher is not completely absent.

In our situation all that we have is the Personal Contact programme, which is organised by almost all universities. But the number of students who attend these is not even 10% of the total enrolment. with the result that the correspondence education in every university becomes in the ultimate analysis, something faceless, soulless and anonymous. It should not have been difficult for each university to establish such centres and arrange for tutorial counselling even within the funds available to them. That this has not been done, in spite of the surpluses which several of them have been accumulating over the years, is because of the fact that no one thought it really important. In fact, no one thought it important even to establish well-stocked text-book libraries for students to borrow books. Most of these students lack means to buy books. Nothing could have been simpler than to buy multiple copies and make them available to students. Where, to some extent, this is being done, the provision is available to hardly 10% of the students. On the contrary, surpluses have been allowed to pile up and some of these obvious things, which were crying out to be done, were not done.

Why correspondence courses have been allowed to operate in this manner and how they have been allowed to dilute academic standards further are questions that may not be asked too searchingly. There is no other answer than this that we have an extraordinary talent for adulterating almost anything. In point of fact, there is so much ignorance on the subject that, except for the seminar referred to above, hardly any one concerned with policy-making has cared to inform himself of the true position as it obtains today. For example, within the councils of the Planning Commission it was seriously mooted that while 20% of the additional enrolment at the post-secondary level in the Fifth Plan (approximately .04 million students) ought to be diverted towards correspondence education, at the same time it was suggested that no funds need to be provided for this purpose, because correspondence courses are, so to speak, self-paying. When this proposal was resisted, it was agreed that the cost per student in correspondence courses should be 25% of the cost per student in a regular college. There is so much more that can be said on the subject of correspondence education not receiving the attention and patronage due to it. Even without saying it, it can be safely affirmed that the one thing we have so far not done is to fully grasp the implications of an Open University in Indian situation,

In essence, the Open University is nothing but correspondence education. Before we take the decision to launch this new venture, the experience gathered so far must be analysed and every possible effort made to avoid all those problems and pitfalls which can be avoided. Should we fail to take these precautionary steps, the result would be unmitigated disaster. —Courtesy Weekly Round Table

Mysore Varsities Bill

PATIL PUTTAPPA M P.

The Mysore Universities Bill, now before the Joint Select Committee, if passed, will be an extraordinary piece of legislation. The provisions of the Bill are so bad in letter and spirit that it is doubtful whether the Joint Select Committee can adequately repair the damage and ensure university autonomy. The Bill cuts at the very root of free inquiry and undermines the very concept of university autonomy. Among the free institutions cherished in a democratic set-up, a university is the most hallowed.

The Bill seeks to bring uniformity in the constitution and administration of the existing and future universities in the State. To say the least, it violates all known canons of autonomy There is a marked preference for the official element. The preponderant emphasis is on nomination, not on election. It amounts to muzzling the voice of the educationist and vesting enormous powers in the Education Minister, the Pro-Chancellor There is nothing he cannot do in regard to the governance of the universities in the State. Although there is the structure of the university—a Vice-Chancellor, a Senate, a Syndicate and an Academic Council—all the powers are virtually in the hands of the Pro-Chancellor. He can behind the back of the Vice-Chancellor, directly call for any paper from any department of the university. If this practice becomes the norm of the day, the discipline in the university office can be imagined.

The Vice-Chancellor and the Syndicate are made powerless. The Pro-Chancellor can over-rule and nullify any resolution passed by the Syndicate. Shorn of its autonomous powers, the seat of higher education, in reality, would become a Department of Higher Education.

The Government has not tried to conceal anything. It has abundantly made clear its intention of running the Universities as a department of higher education, by proposing to create a University Service, comprising all the teaching and non-teaching staff, currently working in the three Universities of the State. The Universities shall have no control over their staff, no voice in their selection and no judgment on their performance. The proposal is fraught with dangerous consequences. It will undermine teaching, inquiry and research making the University teachers subservient to the executive.

It is unfortunate that the Government has equated university teachers with primary school teachers, while making statutory provision for their transfer from one university to another. The Kothari Commission on Education is totally opposed to the transfer, even of primary school teachers, on the plea that teachers should take root in the vicinity and identify themselves with the local children and their problems. What would happen to a student who has registered himself for advanced research in a particular discipline if his teacher is transferred to some other university.

The Vice-Chancellor's position is no better. He serves at the pleasure of the Chancellor, who again, is guided by the Pro-Chancellor. The overriding powers given to the Pro-Chancellor leaves very little elbow room to the Vice-Chancellor. Also, there is the provision to keep away persons of mature wisdom and rich experience, who might unfortunately be in the age-group past sixty.

One of the universities to be affected by this Bill is the Karnatak University, which, among the existing universities in the State, has got one of the most progressive constitutions. It has received encomiums even from the University Grants Commission. The democratic procedure adumbrated in the Act for the election of the Vice-Chancellor has been appreciated.

In the Karnatak University Act, the elected element has a dominant voice. The Vice-Chancellor is elected by the Senate, from a panel of three, selected by the Syndicate. The Syndicate is wholly elected except for the sole State Government nominee, the Director of Collegiate Education. Of the fifteen members who constitute the Syndicate, eight are elected by the Senate, five are elected by the Academic Council, the fourteenth is the Vice-Chancellor (ex-officio) and the fifteenth is the Director of Collegiate Education.

Even the Senate of the University has the most representative composition. Every principal of the affiliated colleges and every head of the University Departments is a member of the Senate. Due representation to other public institutions has also been provided for. The framers of the Karnatak University Act had in mind the avowed purpose of broadbasing the democratic structure of the university.

All that has now been given a go-by in the proposed legislation. Along with the Senate and the Syndicate, the Academic Council has also met with similar treatment. According to the Bill only five heads of the university departments and only ten of the Principals of the affiliated colleges would be on the Senate. It is beyond one's comprehension why a university should deny representation to all the principals of colleges and to all the heads of the university departments. It stands to reason that all of them should be full members of the university community, participating in full measure in all its decision-making bodies, such as the Senate, the Syndicate and the Academic Council. If there is an apprehension that the Senate and the Academic Council would be unwieldy, the remedy is to create more universities, not to curtail the representation enjoyed by the principals and the heads of the university departments.

As far as representation to other popular and representative bodies is concerned, the Government

Continued on page 31

Mr. Patil Puttappa is the Editor of Prapancha, a weekly published from Hubli.

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EDUCATION

D. S. Thakur

Education should not be merely concerned with degree collecting, job hunting and exploitation for personal interests. Agricultural education in our country, at present, equips the students best only for admission to the next degree or a routine type of job in the research laboratory and teaching profession. A shift to the course credit system of instruction has not improved the situation much. The educational system still remains largely mechanical and theoretical with little exposure to the farming problems and little association with the farmers. This does not encourage originality, initiative, constructive activity and independent thinking. Therefore, steps should be taken to make agricultural education more worthwhile by orienting it right from the start to the practical problems of Indian farming.

A More Practical Bias

The students will have to be trained for a wider purpose of facilitating rapid radical change in traditional thinking and traditional farming. This is necessary to arouse a dynamic progressive outlook towards agriculture which is the only hope to improve the lot of uneducated masses in the country who are primarily dependent on agriculture for their living. To create such a progressive and dynamic outlook in agriculture and to make agricultural education more interesting and useful, the course outlines and teaching methods should be discussed by the teachers and students in the beginning of the term and made acceptable and effective to suit the changing patterns of agriculture. A critical bent of mind should be developed in the student so that he could correlate the theoretical instructions received in the class room with the urgent problems of agriculturists. Visits to the country-side, taking short projects for term papers in the nearby rural areas and discussions with the farmers and others concerned, of the problems relating to the courses and writing short reports on them should form an integral part of the student's programme of work.

Teaching, research and extension in agriculture should be developed and closely integrated keeping in view the farmers and farm industries stand point rather than for the purpose of making contributions only to the journals in the libraries. Encouragement needs to be given now to the students and other scientists to write articles in simple language and simple style primarily for the farmers and other people engaged in farm-based industries in magazines and other popular journals for these people. This would require due weightage to be given in the interviews for employment, to these articles and materials dealing with day to day problems of the farm industry and the changing patterns of agriculture in the country.

Student Activities Lead to a New Spirit

Besides, theoretical knowledge and practical experience, there is need for a deep social commitment and sense of purpose on the part of students and teachers if they are to play an effective part in the coming agricultural awakening. A good teacher can make young people realise their duty and channel their tremendous energy and enthusiasm in the right direction. The lack of mutual understanding and guidance from teachers makes the students selfish, pessimistic and confined to the narrow sphere of passing examinations with little relationship to life outside the four walls of the class rooms. This also leads to unrest among the students.

Lack of participation of teachers and staff members in the student activities leads to a feeling of neglect among the students. Teachers should actively try to make student activities more educative and purposeful to serve the basic objective of an alround development of the students' personality and acquisition of real knowledge through education. At the same time student participation, taking due note of their reactions and suggestions in matters concerning them are necessary. This has been accepted in principle in many universities but rarely acted upon. Mechanisms should be evolved through associations and discussions as often as possible whereby students can freely communicate to the authorities their feelings and views. These should be carefully considered and accepted by the authorities to the extent possible if considered genuine.

Extra-curricular activities should be treated as co-curricular activities in recognition of their importance to enrich life and develop a team spirit especially in the course credit system which seems to lay so much stress only on the Grade Point Averages. These activities are essential to build up confidence and an integrated personality in the students as also to make them adventurous and sociable. Get-togethers, joint observation and celebration of national days and festivals by the students and staff members should be considered necessary as a part the process of broadening the horizons of knowledge. All the students should be involved in at least some of the activities such as sports, debates, cultural programmes, hostel life, and kitchen management etc. A study of humanities at some level is also necessary to impart training in the art of good living to the students as also to teach them to deal in a better way with different type of people in their life as citizens. This integration of knowledge and work for a happy living and satisfaction may also be achieved through special lectures by national leaders and scholars, panel discussions, seminars, conferences and students' declamation contests. This would also help the students to develop more contact with different people and open new avenues of employment for themselves in agriculture, agro-industries and other institutions and will reduce the usual fear of unemployment.

New Avenues of Employment

Coming to employment, limiting admissions in universities should not be considered a way of solving the problem as advocated by some people. So long as a large number of people are seeking admission because they do not find better placement, the basis of admission should be the extent of facilities available in the institutions, rather than the employment prospects. Universities should set up employment cells to provide placement service to students trained by them. All the institutions should develop communication channels with other institutions, firms, companies, progressive farmers, cooperative organizations, banks and all other associations and concerns interested to develop markets for their products. As the traditional employment opportunities become limited, new opportunities will have to be developed.

In addition to the agricultural development programmes envisaged in the Fourth Five-Year Plan to ensure agricultural growth at 5 per cent per annum, Agricultural Consultant service could be developed in the rural areas to cater to the needs of a rapidly changing agriculture. Facilities should be provided to create a new kind of consultant—the Agricultural Practitioner. These practitioners like medical doctors could provide to villagers on payment advice, information on latest varieties and farming methods, treatment to crops and plants and other services and farm inputs. Banks should give them credit to establish agricultural laboratories in the rural areas as also to manage the supply of agricultural inputs to the farmers.

Admittedly, this will require a more real, thorough and practical training in agriculture to understand the problems of production and growing needs of the farmers. Students will have to be given a small acreage to produce crops for their benefit and to learn the art of farming. If that is not possible they should be given apprenticeship and opportunity to work on the farms with the farmers for a year or so. Such a training will also encourage the agricultural graduates to start their own business in agriculture; industry and other agro-based economic activities as also to contribute significantly to Government service, agro-industrial complex and the farmers.

What Can We Contribute?

The task before us in agricultural education, at present seems to lie more in creating and spreading knowledge for sustaining the Green Revolution to increase agricultural production rather than in creating knowledge for additions to the voluminous pile of literature in the libraries. Fortunately, now there is a real growing interest in agriculture due to the Green Revolution in the country. Many educated and retired people are, proudly taking to commercial farming and a new aristocracy of gentlemen farmers is emerging. It is high time that we do our best to accelerate this process by mixing with the people and helping them to overcome and combat the growing feeling that the educated people in the country are responsible for the prevailing confusion and inefficiency.

Everyone of us must look for an opportunity to work not only in the future, but right now, as students. Let us do something individually or as a group at least once a month to make our associations better associations, our organisations better organisations and our individuals better individuals in whatever way we can, to prove worthy of the huge investment which the country is making in our education. Let us ask in what way we are more useful to people than those who did not get such an opportunity. Let us think of what we are giving to the society in return for all that we are getting. Let us, as agricultural students and teachers, give a lead in demonstrating our concept of the new leadership wanted in our country by creating opportunities for ourselves and by bending all our energies and training to the service of our people and the service of our country. This requires that we mix with people and win their confidence by working with them. Shall we do this?

Research Scholars in Science

Prof. J. N. Kapur

A young scholar entering upon a research career should be very clear about the motivations that inspire him to undertake research. The various possible motivations are:

(i) desire to get a Ph. D. Degree or a D.Sc. degree and consequent rise in status in society and the monetary benefits resulting from the acquiring of the degree.

(ii) desire to get the applaud and appreciation of the present fellow scientists and possibly even of the scientists of the future generation.

(iii) desire to know the truth and to solve unsolved problems.

(iv) desire for intellectual joy given by creative research.

(v) desire to be of service to mankind.

Some or all of these desires will be motivating forces in almost all cases, but in each individual case, *some ones desire may dominate over others.* The motivation will determine, to some extent, the nature, quality, depth, and duration of research.

Motivation for Research

The first motivation is present in almost all cases and there is nothing wrong with it, but in most cases this is the only motivation. A scholar works hard to get his degree, but immediately after getting the degree, he stops doing work. Quite often the work done for Ph.D. degree is quite good and proves, beyond doubt, that the scholar concerned can do good research work *if* he wants to do research, but since his immediate goal is reached, he stops. The research effort is good but short-lived and leaves no permanent impression on mathematical research. After his Ph.D., the person continues to get a reward throughout his life for the effort he once put in. The person does not remain even a minor authority on his subject. *His teaching is very little influenced by* his research, since teaching is influenced by the attitude of mind of the research scientist and there is no difference between the attitude of mind of an inactive Ph.D. and a non-Ph.D. teacher. In fact the *situation* becomes worse *since* the *Ph.D.* assumes a certain attitude of superiority which is hardly justified by his current habits of work.

In fact, it has been seriously suggested that the C.S.I.R. and UGC should not support the research efforts of those whose only motivation is (i) and they shonld be left to their own resources. The difficulty of deciding the motive in advance is however there and even when one starts with motivation (i), there is no reason why one may not change *to (ii)* or *(iii)* or others later on.

In many cases persons continue to do research work after the Ph.D. degree either for the sake of D.Sc. degree or for the sake of getting a readership or for a professorship. But after that, this motivation dries up. In fact in all countries, there are cases of professors who have done no research during the last ten or fifteen years.

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The second motivation however continues to be effective throughout one's life. A person works hard so that when he presents his results to a knowledgeable audience at a conference of a learned society, he gets the appreciation of his colleagues. He works hard so that his research papers are published in research journals, his name appears in print and scientists all over the world read his papers and enjoy these and know him by name, if not in person. He works hard so that appreciative eyes are focussed on him when he meets students, teachers and research workers working in his subject. He works hard so that he is elected to fellowships of learned societies. He works hard so that he may receive invitations to international conferences all over the world and thus may travel all over the world without spending a penny.

A scientist whose main motivation is (ii) given above wants to do work which will catch the imagination of the profession and which will be deep and outstanding. There is a wide spectrum of research possible. At one extremity, we have research which opens out new fields of research and which is such that hundreds of persons find enough challenging problems to work on in that field. In all the hundreds of papers arising out of the fundamental paper, reference is made to the original author and the name of the author of the original paper becomes immortal in literature. At the other extremity, we have research which is the terminating point of a research process and which closes a field of research. In between is research which is some distance from both the beginning and the end. The references to papers in the literature are almost directly proportional to the distance from the end. Many people therefore prefer to work is fields which are newly opening out.

It has however to be realised that problems in the initial stage of the development of a field may be easier than problems at the end. Problems possibly increase in difficulty as we approach the end of the field.

There is however another difference in quality of research papers. They are some which are like deep results, while there are others which one like easy corollories, there are some papers which take even scholars in the field weeks to understand, while there are others which can be understood even by novices in a matter of minutes, there are some papers whose proofs even brilliant persons will take months to discover and there are papers whose proofs can be discovered by graduate students in a short time.

There are some scholars for whom the third motivation is quite strong. They start with a difficult problem and struggle to solve it for months and years on end. They fail and try again. They do not publish, they do not get recognition but the desire for solving the particular problem becomes a passion with them. Sometimes they succeed and then success makes them famous overnight, but this is not usually the case.

Some persons start their research careers by trying to solve problems given in Scientific olympiads or in American Scientific Monthly or other similar journals. They began to find a certain joy in solving these problems and extending these problems further. However such persons never go deep in search. They go from one problem to another. They just enjoy the 'intellectual kick' inherent in such efforts. In rare cases, some of the problems lead to deep results.

One final motivation for research in science may be of service to mankind. This applies, for example to engineers, bio-scientists and other applied scientists. Their main object is to exploit powerful scientific tools to solve practical problems for the benefit of mankind. Of course, in some sense pure scientists care as much for the intellectual benefit of mankind as applied scientists do for the physical benefit of mankind.

Involvement In Research

This also varies from individual to individual. There are some whose involvement is nominal, who write research papers but whose research life and non-research life form two water-light compartment. On the other hand there are others who are deeply involved in research, who are almost always thinking of their research problems, even when they are taking their bath or when they are walking on the road. There are some who won't talk about research, while there are others who will, if they can help it, catch the next man in the street and will begin to describe to him their research results. There are some who may be deeply involved, but would like to work in isolation while there are others who need company to discuss and for whom discussions lead to useful results and quite often joint research papers. There are some who want to talk science as much as possible while, there are others who want to avoid talking science.

It is true however that the depth of the results obtained by a person does depends on the depth of his involvement in research.

The involvement in research is connected closely with the scintific morale of an individual, a group or a nation. When morale is high, individuals and groups have the courage to attack difficult problems and they naturally reach some depth, while if the morale is low, they attack relatively easy problems and depth of research suffers, the effect is really harmful, if they lose faith in their own capacity to deep research.

Ethics of a Research Profession

The following are against the ethics of a research profession.

(i) making of a minor modification in another persons paper and publishing the minor modification as a new research paper.

(ii) making use of some one else's results and then not acknowledging it.

(iii) addition of the name of a person as an author in a paper where his contribution is very little.

(iv) accepting a thesis which one knows must be rejected.

(v) reviewing a paper in a field in which one is not an expert.
(vi) publishing the same paper in more than one journal.
(vii) making unfair use of the results of a paper which has been received for referencing.
(viii) publishing a paper after knowing in a conference the contents of that paper by some one else.

Scientific Research as a Profession

Just as law, medicine and engineering are professions, similarly teaching and research are professions. It means that though these are means of earning livelihood, yet their scope goes beyond this limited objective. It means (i) that there has to be an unwritten or written code of conduct (ii) persons engaged in the profession should have a sense of affinity among themselves (iii) a profession should be, in some sense, a means of serving mankind (iv) every member should feel that he owes a debt to his profession which he can repay by becoming (a) member of professional bodies (b) by strengthening professional bodies in other ways (c) by participating in conferences, symposia etc. (d) by abiding by the code of conduct of the profession.

Position in India

In India, the first motivation of personal advancement through research dominates, the second motivation is also there, but since we have not reached a stage where in every field, there are enough scientists and the opportunities for discussion are not many-a research worker's weakness is not found out either by himself or by others for a long time. A person who did good research work at one time, may continue to enjoy the reputation for good research work even ten years after he has ceased doing any research.

The only way is to organise high level conferences where specialised current research is discussed and where the worth of a man is measured not by his *seniority*, but it is measured by his *contribution* to discussions.

The growth of professional societies in India is very slow. Most societies have 50 to 200 active members: other members do not even pay their subscriptions for long periods of time. The tradition of professional membership has not grown. Apart from publishing journals, and that too irregularly, and holding annual conferences, not much has been done by these societies.

The needs for increasing the number of men dedicated to scientific research and of increasing professional activity on a large scale are very urgent.

Research Methodology

What is scientific research and how does one proceed with it? In science, one may use the known scientific concepts to discover other concepts or one may create new concepts to suit new situations. Future research can be built up only as a superstructure on the existing current research as it is available in current journals, it cannot be built up on the existing knowledge as it is contained in textbooks. A research workers must be constantly absorbed with current journals and books which contain articles on current research. Whenever a scholar reads a paper, he should ask himself questions like the following:-

(i) Can I reproduce the paper myself?
(ii) Can there be an alternative (possibly simpler and more elegant) proof of the result stated?
(iii) Can some conditions of the results be relaxed?
(iv) Can some conditions be replaced by other conditions?
(v) Are these results the most general or can these be generalised further?
(vi) Why did the author think of the particular results and why did he give the proofs he has given? What could have been his motivation?
(vii) What is the importance of the results of this paper in the state of existing knowledge? What can be its importance for the future?
(viii) Can the results of the paper be used in any other context?
(ix) Has sufficient numerical and computational work been done to justify the conclusions arrived at? How can the physical experiments be performed to verify the results? Could the results obtained by scientific arguments be seen to be true on intuitive grounds?
(x) Can I write a survey of which this paper will be an integral part?
(xi) If I were to write a review of this paper, what shall I write?
(xii) How many of the papers referred to in this paper have been read by me?

A research scholar should

(a) spend at least three or four hours per day in a good library with current journals.
(b) in case a good library is not available, and even when one is available, he should—
    (i) get reprints of papers from the authors of those papers which are directly within his field of interest,
    (ii) even copy down these papers which he has to refer to again and again.
(c) attend conferences and listen to the papers in his field of interest with great deal of attention and hold discussions with the authors of these papers afterwards,
(d) read widely in his own field of research and at least know what is happening in allied fields,
(e) write and rewrite his papers and constantly make efforts to improve them,
(f) aim constantly at depth and at attacking really difficult and challenging problems,
(g) get really involved in the problems he is attempting to solve.

It is hoped that some of the problems posed here and some of the activities suggested here may help the research scholars to have some glimpses of research methodology.

Job Oriented Courses in Universities

OM PRAKASH

The question of introducing special professional courses at the collegiate level is being considered by various universities. The objective of this exercise is to have a more realistic approach to education in subjects like Business Administration, Banking and Engineering. These courses will be so diversified that the students have wider options and the courses would be more flexible than at present. Delhi University has already introduced such courses in one of its colleges.

The number of unemployed graduates has ever been on the increase year after year because of the rapid expansion of facilities for higher education without a corresponding increase in the employment opportunities. There is a general feeling that the graduates of our institutions are either over qualified to do certain clerical jobs or are totally inefficient to undertake more responsible and challenging jobs in commercial undertakings.

Majority of our graduates prefer to go in for secure jobs and shun self-employment. They are not prepared to venture in entrepreneurial activity either due to lack of capital or due to lack of zeal and competence. Nor are they aware of the immense opportunities that are offered by governmental and non-governmental institutions in the form of technical and financial assistance. Hence there is a need for reorientation of degree courses to develop qualities to meet the requirements of a competitive society.

There should be some sort of coordination between the number of graduates passing out of educational institutions and the requirements of the employers in the country. The educational institutions, local banking and industrial enterprises should move closer so that the student could be given practical training in these technical fields by arranging suitable programmes without hampring the normal working of the respective enterprises. Accordingly the prescribed syllabus for these students should lay more emphasis on practical aspects of these courses.

The subjects of specialisation should be introduced at the beginning of the degree course itself so that the advanced study is possible in the final year. Specialisation should not be too limited in scope and every facility should be afforded to acquire knowledge in related fields as well. The students should have the ability to take up independent jobs immediately after coming out of the college. They should be able to imbibe within themselves all the qualities of professional entrepreneur.

The basic problem before the universities in adopting this system is : Whether this system should be introduced in all colleges or only in professional and autonomous college ? In view of the difficulty of providing equipment for specialised study and recruitment of qualified technical staff in the related fields, the teachers should be trained in new teaching methods with special emphasis on acquisition of practical technical skills. Even more important problem is of changing the pattern of the examination system. The universities have to maintain links with industrial, commercial and government enterprises. Some of the universities have planned their own model industrial units for helping their alumini. The government should come forward to help the universities by making adequate funds available to them to maintain such educational cum-training centres. The public enterprises can also actively cooperate with the university in such projects. The Department of Commerce of Osmania University would be starting degree course in applied commerce in the near future on these lines.

To Know Kerala See KERALA

Historical places—Cranganore,
Kozhikode, Kappad, Cochin,
Trivandrum and others
Gardens & Projects—Malampuzha
Peechi, Neyyar, etc.

Scenic charms, boating: Quilon
Periyar, Veli, Cochin, Backwaters.

Sun-and-surff bathing—Kovalam
Thirumullawaram beaches.

The variety is almost endless.

Details can be had from :

Tourist Information Office,
Government of Kerala,
Mascot Hotel,
Trivandrum-1.

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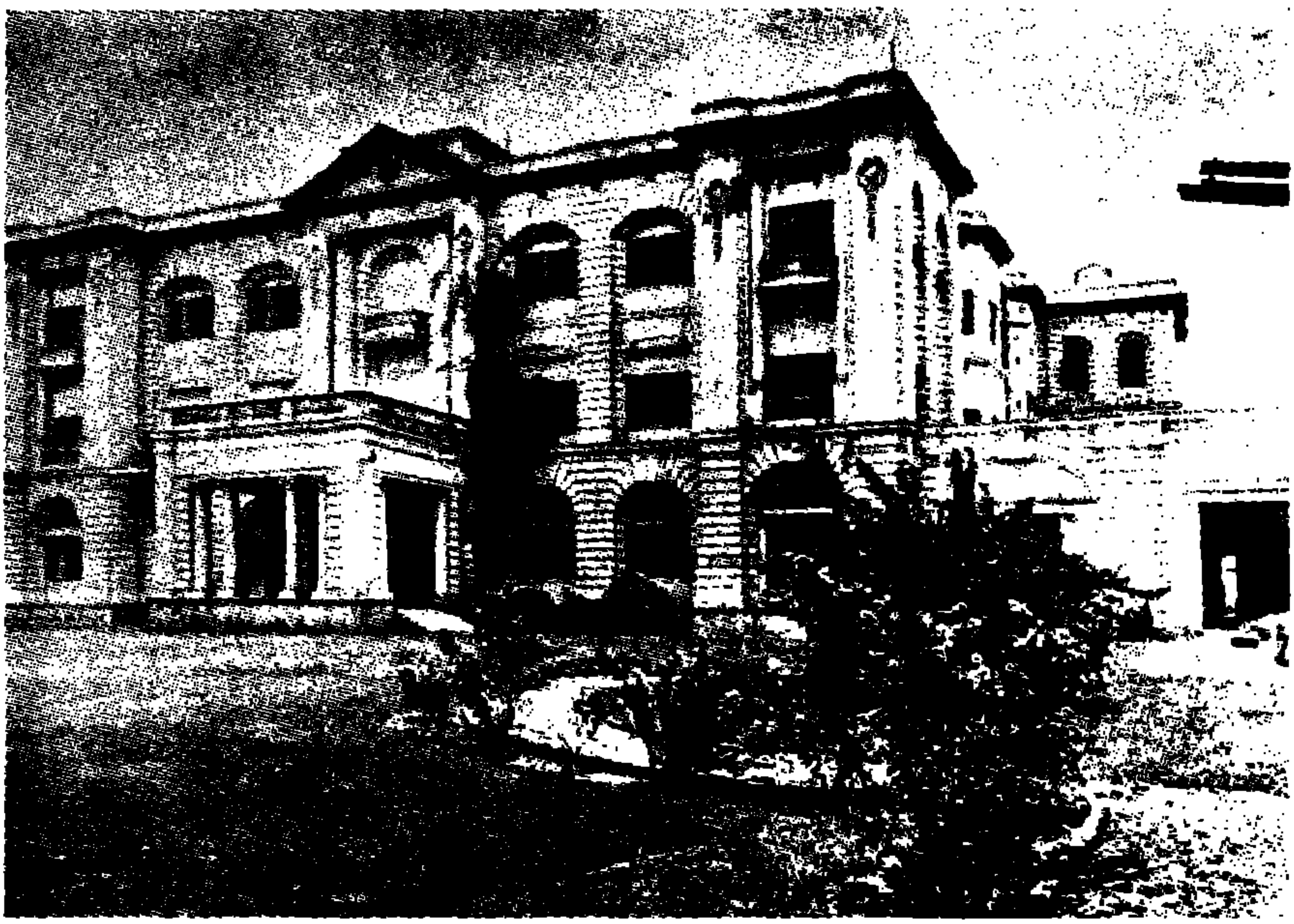
Science Museums



Renovated Museum Building

The Government of India has decided to set up one science musem in the capital city of every state in the country. So far only two—one in Calcutta and the other in Bangalore have well organized science museums to show the achievements and capabilities of science and technology to the young people.

The Council of Scientific and Industrial Research has set up Birla Industrial and Technological Museum at Calcutta in 1959. This is the first national museum of its kind in our country and its basic objects are: (1) to portray the history of science and technology, (2) to create scientific awareness among the common people, and (3) to supplement science education.

The museum has several galleries depicting a chronological history of science and technology through working models, animated exhibits, demonstration exhibits, dioramas and illustrated charts which explain basic principles of science in a lucid manner to the visiting public. It has galleries on Popular Science, Motive Power, Nuclear Physics, *Mining, Copper, Petroleum, Iron and Steel, Electricity*, Television, Electronics and Communication. Each of the gallery has guide lecturers for demonstrations of the exhibits to the general public. Special conducted tours are also arranged for students. Recently a gallery on transport has been added.

Regional Science Museum has already been established in the district town of West Bengal to organize sustained education programmes in the districts of Midnapore and Purulia in January 1968. Two other Regional Museums have recently been opened in Bankura and West Dinajpur districts. These Regional Museums are needed to meet the needs of local people and their activities relate to running students hobby centres, organising science demonstration lectures, holding science seminars and arranging science exhibitions by students and periodic lectures and film shows. The museum has its own technical staff and a complete workshop for designing and fabricating most of the exhibits to be displayed in the museum or in any other places. In the *museum there are as many as 2,500 exhibits displayed* in 17 rooms with floor areas of nearly 2,000 feet.

The success of the national museum to popularise science and technology among common people has been very encouraging over the years. This has *led to the establishment of other museum in Bangalore* named after Dr. M. Visvesvaraya, the noted engineer. The Government is planning to set up a series of such museums in the various parts of the country.

School of Automation: IIS, Bangalore

The school of Automation has been created at the Indian Institute of Science, Bangalore, in 1969 with Soviet collaboration as a centre for higher education and research in the fields of Control and Computer Sciences. Liaison with industries to promote application-oriented research and developmental work and the training of post-graduate students in both theory and hardware aspects in the above areas are the major objectives of the School. The research and academic programmes of the School have been carefully drawn up to successfully meet these objectives.

The School of Automation offers an interdisciplinary programme leading to the M.E. degree in Automation by course work followed by a project and M.Sc. or Ph.D. degree by research. The M.E. programme in Automation is a unique one admitting students from different fields of Engineering and training them in all engineering functions of control and computer sciences including design, development, research and management. The School has well developed laboratory facilities in the areas of Control Systems, Analog Computers, Digital Systems and Instrumentation to serve for both instructional and research functions.

The students admitted to the M.E. degree course must have a basic degree in Engineering and must have prior exposure to Control and Electronics. In view of the interdisciplinary nature of the programme the course has been designed to suit students of different engineering backgrounds. The electives offered supplement the wide choice already existing in other departments. This provides ample flexibility to the students to structure the course work that is best suited to their individual backgrounds aptitudes and future plans. In project work, which is mandatory to all, the student engages in creative and self-learning experience in either research or design aspects related to his area of specialisation. The school expects the Master's degree projects to be application oriented, culminating in a dissertation of direct value to the Indian Industry or R & D establishments.

The research programmes concentrate on application oriented as well as basic research in a broad spectrum of areas covered by Control and Computer Sciences. The faculty structure of the School provides for some full-time faculty members and others drawn on a part-time basis from other departments of the Institute, thus reflecting its interdisciplinary character. The research and developmental work by the faculty is organised and pursued in the following five areas: (i) Simulation, Analysis and Design of Large Scale Systems, (ii) Control and Instrumentation, (iii) Digital Systems Hardware, (iv) Computer Software and (v) Pattern Recognition. More specifically the spectrum of interests covered by the faculty under the above heads include Analysis and Optimization of Large Scale Systems, Systems Identification Optimal and Stochestic Control, Differential Games, Estimation Theory, Character and Picture Recognition, Reliability Theory, Systems Engineering, Computer Control, Computer Architecture, Digital Circuits, Computer Hardware, Systems Programming, Fluidics and Fluid Power Control.

Several Project oriented activities which culminate in the establishment of strong research facilities have been undertaken by the School. Such activities which are under progress are Design and Development of Flight Simulator facility for research in Pilot-vehicle systems area, Design and Development of a Mini-Computer for research in Computer Architecture and Software. Design and Construction of a Drum Scanner for research in Image Processing.

Also the School conducts continuing education programmes in the form of Short-term courses, Workshop sessions, Case studies, Technical symposia, etc., for practising engineers and engineering educators to foster close links between the School and the industries and R &D establishments.

This young and up-coming centre, would be completing its initial build up phase by 1974. A substantial developmental plan is envisaged for the II phase, coinciding with the fifth five year plan period and one may look forward to the School becoming a leading national centre for Automation.

The main features of M.E. (Automation) Programme are Summarised Below :

Specialization : Control & Computer Sciences; Student intake : 12; Course duration : 2 Academic years; Admission qualification : A first class degree in electrical, electronic, mechanical, chemical or aeronautical engineering; Course requirements : 64 credits ;

(a) Core courses : 30 credits comprising the following courses : (i) Mathematics, (ii) Material Science, (iii) Instrumentation Systems (iv) Digital Electronic Circuits (v) Control Systems Design (vi) Digital Computer Engineering (vii) Computer simulation (viii) Linear, Dynamical Systems (ix) Random Processes;

(b) Electives : 22 credits to be selected from nearly AU 20 electives offered as well as from courses offered by the other departments. Some of the AU electives deserving special mention are as follows :

(i) Digital Systems for Computation and Control (ii) Computer Control of Industrial Processes (iii) Large Scale Dynamic Systems, (iv) Fluid Power Control Systems (v) Computer Software (vi) Structure of Computing Systems (vii) Information System Design.

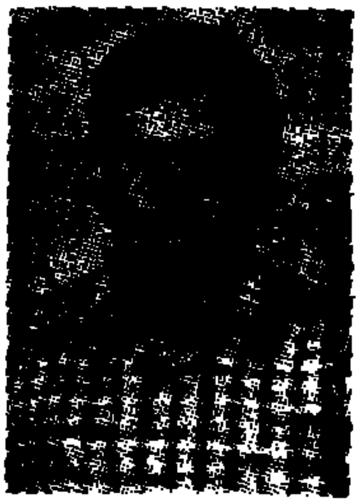
Project :12 credits. Provides a creative, self-learning experience in research or developmental work, incorporating the latest technological trends.

Inplant training : No credit. 4—6 weeks training in a reputed industry/R & D organizationassociated with computers or other automation systems.

INDIAN TEAM FOR

Prem Nath

S.L. Varute


Kartar Singh

Ved Parkash

On the basis of the selection trials held at the Netaji Subash Chandar Institute of Sports, Patiala, the following athletes have been selected for the Indian contingent going to the seventh World Students Games (Universiade) which is going to be held from August 15 to 25 this year at Moscow. These selections were made by a committee consisting of Mr. R.L. Anand, NIS Director, Mr. Dewan Pratap Chand, Mr. V.P. Mehta, Mr. L.R. Khanna, Mr. J.S. Saini, and Mr. G.S. Sivia.

The athletic team will be captained by Suresh Babu of Kerala University while Sudesh Kumar of Delhi would captain the wrestling team. The tennis team will consist of four players. They are already on a tour of the continent and are expected to join the other members of the contingent in Moscow. The selection of the officials of the team is yet to be announced. Some details about the members of the Indian Team is given below:

Athletics

Suresh Babu, (Captain); B.Sc. Final (Zoology); Kerala University; born on 10.2.53; height 1.87 mts; weight 73 Kg.

Represented India in Munich Olympics—1972 in high jump and tripple jump; best performance 2.06 mts. in high jump in Universiade trials. Hobbies: photography and reading.

Representing India in high jump and tripple jump in Moscow Universiade.

Jujhar Singh, LL.B. 1st Year; Ranchi University; born on 2.8.49; height 1.68 mts.; weight 73 kg.

Best performance 65.14 mts in javelin in Universiade trials. Hobbies: reading and stamps collecting.

Representing India in javelin throw in Moscow Universiade.

Miss Anusuya Bai, B.Sc. Final; Madras University; born on 23.8.53; height 1.67 mts; weight 60 kg.

Best performance 42.78 mts. in discuss throw in Universiade trials. Hobbies: reading.

Representing India in discus throw in Moscow Universiade.

Miss Irene Saldanha, M.Com. Ist Year; Bangalore University; born on 9.1.54; height 1.56 mts.; weight 43 kg.

National athlete. Best performance 5.65 mts in broad jump in Universiade trials. Hobbies: reading.

Selected provisionally to represent India in broad jump in Moscow Universiade.

Wrestling

Sudesh Kumar (Captain), B.A. IInd Year; Delhi University; born on 10.3.1950; height 1.58 mts; weight 57 kg.

Fourth place in Munich Olympics—1972 and National Champion six times. Hobbies—singing.

Representing India in Moscow Universiade upto 57 kg.

Prem Nath, B.A. Final; Delhi University; born on 9.7.1955; height 1.60 mts; weight 52 kg.

Fourth place Munich Olympics—1972; National Champion—1972. Hobbies: reading.

Raj Singh

Satya Pal

Jujhar Singh

Anusuya Bai

MOSCOW UNIVERSIADE

Ilyas Ghouse

N.R. Desai

Rajesh Batra

Representing India in Moscow Universiade upto 52 kg.

Raj Singh, B.A. Final; Delhi University; born on 15.8.1953; height 1.72 mts; weight 68 kg.

Fourth place in Junior World Wrestling Championship Tokyo—1971.

Representing India in Moscow Universiade upto 68 kg.

S.L. Varute, Pre-University; Shivaji University; born on 6.7.1949; height 1.58 mts; weight 40 kg.

National Champion—1973.

Representing India in Moscow Universiade upto 48 kg.

Kartar Singh, Pre-University; Guru Nanak University; born on 7.10.1953; height 1.75 mts; weight 74 kg.

National Champion—1973. Hobbies: swimming.

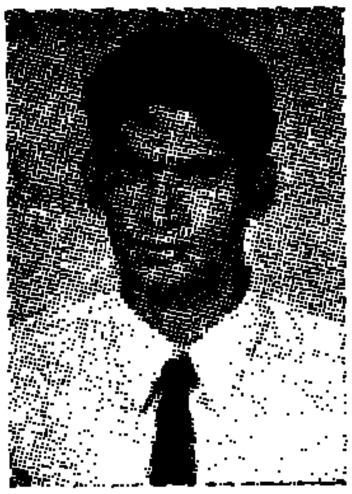
Representing India in Moscow Universiade upto 74 kg.

Satya Pal, Madhpurnima class: Varanesaya Sanskrit Vishwavidyalaya, Varanasi; born on 15.6.1956; height 1.80 mts; weight 79 kg.

IN QUEST FOR MEDAL !

Irene Saldanha

Sudesh Kumar Captain (Wrestling)



Suresh Babu Captain (Athletics)

Represented India in Munich Olympics—1972, National Champion—1973.

Representing India in Moscow Universiade upto 82 kg.

Ved Prakash, B.A. Ist Year; Delhi University; born on 10-12-1955; height 1.70 mts; weight 69 kg.

Gold Medalist Commonwealth Games—1970, National Champion —1971.

Selected as reserve for representing India in Moscow Universiade upto 68 kg.

Tennis Players

Rajesh Batra, B.Sc. Junior; Bombay University; born on 20.3.1955.

Winner junior singles in All India Hard Court Championship —1972 and winner junior singles in Western India Hard Court Championship—1973. Ranked No. 2 among juniors under 18.

Representing India in tennis in Moscow Universiade.

Nimish Ramesh Desai, Inter Commerce; Bombay University; born on 14.12.1955.

Runners-up in Western India Campionship—1973 and ranked No. 4 among juniors under 18.

Representing India in tennis in Moscow Universiade.

Ilyas Ghouse, B.Sc. Senior; Bombay University: born on 2.8.1955.

Reached upto semi-finals in Western India Championship; Maharashtra. Ranked No. 1 in juniors under 14 and 18.

Representing India in tennis in Moscow Universiade.

Bidyut Goswami, B.Com; Calcutta University, born on 14.12.1955.

A coming up tennis player.

Representing India in tennis in Moscow Universiade.

NSO SPORTS TALENT SCHOLARSHIPS 1973-74

Last date of receiving applications, on the prescribed proforma, for fresh NSO scholarships in the office of the Inter-University Board, for the academic session has been fixed as 15th September, 1973. Printed application forms have been circulated to the member universities. Those desiring to apply may, therefore, contact the Sports Officers/Registrars of their respective universities for application forms and other details.

The scholarships are available only for the bonafide students of the member universities subject to other terms and conditions laid down in this behalf. No application shall be entertained unless sent on the prescribed proforma and through the university concerned.

INDIRA KALA SANGIT VISHWAVIDYALAYA, KHAIRAGARH (MP)

(Statutory University of Music & Fine Arts Established in 1956 and recognised by Government and U.G.C.).

Admission to Painting, Music and Dance (Bharat Natyam and Kathak) Courses.

The University offers Diploma, Degree and Post-Graduate Courses in Painting, Vocal Music, Instrumental Music, (Sitar, Violin, Tabla) and Bharat Natyam and Kathak. Degree Courses are Honours of Three Year duration. Besides Honours, Arts subjects are compulsory.

Details obtainable from the Registrar by sending Postal Order or Stamps of Fifty Paise.

Khairagarh, (M.P.),
dated the 3rd July, 1973.

D. K. GHOSH
REGISTRAR

PLANS FOR STUDENT SERVICE INSTITUTES

The Andhra Pradesh Government is considering a proposal to set up student service institutes in selected places all over the State. These institutions will be housed in the buildings named Nanak Bhavans. They will seek to inculcate qualities of self-reliance and self-help among the students. The academic community in their spare time would be associated with the service of non-academic community. Each Bhavan would have a hall to accommodate 1,000 students which would be so built that it could serve as a workshop and classroom in addition to functioning as an auditorium. The Bhavan would also have a library-cum-reading room, a cafeteria and a gymnasium. A Students' Cooperative Store dealing in articles useful to students such as sale of books and a section to maintain a book bank would also be created. The management of the institutes would be entrusted to a managing committee of students cooperative.

The students of Bhavan would be helped to carry on activities such as commercial correspondence, typing, shorthand, secretarial practice, book binding and photography. Ultimately these students will serve the community by holding adult literacy classes for the benefit of non-student youth and adopt nearby villages for the purpose of survey of felt-needs and carry out rural development programmes.

The Govt. of India is expected to provide 75 per cent of the total expenditure on the construction cost of these Bhavans. The remaining expenditure would be made available by the State Govt. In addition they would also provide ten acres of land for each of the institutes free of cost and would supply necessary equipments and tools for running of the workshop and various other schemes of continuing education.

For impating training in various technical subjects, part-time instructors from nearby IITs and Polytechnics would be made available. They would help in the preparation of syllabi for various courses. The School of Social Work or University Department of Social Work would have overall control of the schemes. They would organize students cooperatives and provide guidance for the running of the institutes undertaking, annual evaluation of the working for submission of reports to the State and Central Governments.

STUDY OF ASTROLOGY IN UNIVERSITIES

A plea to universities to introduce astrology as a subject of study and institute a chair so that something original might be discovered was made by Mr. B.V. Raman, the Editor, Astrological Magazine, while addressing the meeting held under the auspices of the Bhartiya Vidya Bhavan in Mylapore, Mr. Raman pointed out that astrology is a science of the individual and not of the masses and hence there was an uncertainty principle even as there was the Heisenberg's uncertainty principle in Physics. It could not be said that the science of astrology had no basis simply because it did not lend itself to occular demonstration in a laboratory. It applied to human beings, natural phenomena and weather forecasts. Certain facts must be assumed before they were denied. In the Western countries many psychologists and psychiatrists were really practising astrologers while in India (which was its cradle and where it grew up) it is ignored. It was well known that the planetary positions exerted influence on the emotions of man. It had been demonstrated that when Mars and Mercury were 90 degree apart, there were solar flares and ionospheric disturbances. When the sunspots were directed to the earth there was change in radiation intensity. There was direct relationship between greater incidence of cardiovascular disorders and heart attacks and solar flares.

Mr. K.K. Shah, Governor of Tamil Nadu who presided over the function said that in the Soviet Union and Czechoslovakia, astrology had already been accepted as a science.

THE DURGA RATAN JOURNALISM AWARDS

The Durga Das Ratan Devi Trust has announced four awards this year for "excellence in journalism". Each award carries a gold medal, a cash prize of Rs. 1,000 and a citation. The awards will be formally presented to the recipients by President, Mr. V.V. Giri at a special ceremony to be held at India International Centre on August 9.

These awards have been made on the recommendations of the Advisory Committee, which is presided over by Mr. Justice Rajagopala Ayyangar, Chairman of the Press Council of India and includes five eminent journalists. The following are the heads under which the awards have been made: (1) **Mr. V.R. Padiyar**: The best performance in the sphere of investigative reporting during the year (2) **Dr. N.R. Parulekar**: The Editor whose advocacy of a cause has made the greatest impact on the public and/or on the authorities during the year (3) **Mr. G.K. Reddy**: The columnist whose writings over the year marked him out as the most outstanding analyst and commentator of the year (4) **Mr. R.K. Laxman**: The most outstanding portrayal of an event which attracted nationwide attention through pictorial reproduction or through a cartoon.

The Durga Das Ratan Devi Trust was established as the result of a decision by Mr. Durga Das, the vetern journalist, to gift away the net amount received by him from his book "India—From Curzon to Nehru and After" for the purpose of encouraging journalism in its several fields. The Durga Ratan Awards are based on the lines of the Pulitzer Awards in U.S.A.

EARN WHILE YOU LEARN AT BANGALORE

The Bangalore University has launched a scheme to involve the students in the "Earn while you Learn" project designed to help them to realise the importance of dignity of labour and to make them self-reliant. Mr. Narasimhaiah, the Vice-Chancellor at the inauguration function urged the students to involve themselves in large numbers in gardening at the new campus in Nagarabhavi where it is proposed to plant trees on a massive scale. Seven hundred students who have participated at the various camps of the university under youth against famine scheme have already offered their services.

Plans are also under way to explore the employment opportunities for students in factories and hotels. The students could work in these establishments for one or two hours daily and thereby earn their pocket expenses. The university made arrangements with the local Govt. Sugar Factory where students could earn from Rs. 30 to Rs. 35 a month. The Vice-Chancellor emphasised that to make such schemes successful, it was necessary that the students who involved themselves in such projects should do so without diverting their attention from their studies. The object was to see that students did not suffer due to paucity of money to pursue their studies. Students would also be encouraged to use their leisure time to sell the university publications and visit homes, for which the university would allow liberal commisions.

SEX EDUCATION FOR COLLEGE STUDENTS

The Stallions International, a social service organisation in Cochin has organized for the first time sex education course for one month duration for both boys and girls studying in colleges. A group of 25 teenagers has been selected from forty applicants for the course.

A panel of four eminent city doctors would be holding afternoon classes on Saturdays and Sundays on the anatomy and physiology of sex organs, conception, delivery, venereal diseases —its signs and symptoms and prevention. The whole gamut of psychology of sex is proposed to be made illustrative and useful with the aid of charts and slides.

The Kerala Health Minister, Shri N. K. Balakrishnan inaugurated the novel course on 'Health and Hygiene in Sex'. He appreciated the idea not only as worthy in the present context to impart an overall sex knowledge, but hailed the utility of the programme in preventing venereal diseases and helping in the birth control measures.

MODERNISING B. COM. SYLLABUS

Teachers of Commerce from various colleges of Madras University participated in a ten-day orientation course held at Jamal Mohammed College, Madras recently. Prof. E. P. Mohammed Ismail, Principal and the Director of the course in his report pleaded for the upgrading of the B.Com. syllabus. Since the demand for seats in commerce faculty is explosive—a system of scientific selection of students was suggested. The participants of the conference found the syllabus of the universities conspicuous by the absence of papers of practical importance like the Central and State Tax Laws, Industrial Laws, Advanced Numerical Analysis and Business Psychology. The present curriculum is not at all designed and structured to achieve the educational aim of commerce studies. The participants suggested that adequate financial assistance should be made available so that more tutors in the departments could be employed and the recommendations of the conference could be implemented. The university was also requested to expedite the measures to introduce research facilities in the faculty leading to the award of Ph.D. degree.

The participants pleaded for the change in the illogical and inequitable examination system. At present the examinations were held in major subjects at the end of the year. The preponderant importance given to the written examination at the end of the year failed to keep the students engaged throughout the year. In view of the special nature of the B.Com. courses, the semester system was recommended for adoption. Sessional work, project study and keeping proper record of practical work was also emphasised at the seminar. It was suggested that internal assessment be made on integral part of the examination system. The university authorities and the business community were requested to cooperate to ensure the success of the new courses.

ELEVENTH COMMONWEALTH UNIVERSITIES CONGRESS AT EDINBURGH

The Eleventh Commonwealth Congress would be held in Edinburgh from August 11 to 18 this year. The conference would be presided by His Royal Highness, The Prince Philip, Duke of Edinburgh, Chancellor of the University of Edinburgh. The opening session will be addressed by the Right Honourable Lester Pearson of Canada.

The congress is being held in the Jubilee Year, the sixtieth anniversary of the Association. There will be two preliminary sessions—one at the beginning and the other at the end of the congress. The bulk of the discussions would however be confined to smaller groups. The topics for group discussions will be aspects of broad themes: (a) The Problems of the Environment and the Universities, (b) Contemporary Culture and the Universities, (c) Resources for Higher Education, (d) Cooperation between Universities, and (e) Government of Universities.

The following would be the delegates from the Indian Universities: Prof. Abdul Aleem (V.C., Aligarh); Shri L. Bullayya (V. C., Andhra); Dr. S. P. Adinarayan (V. C., Annamalai); Dr. K. L. Shrimali (V. C., Banaras); Shri N. K. Vakil (V.C., M.S. Baroda); Shri Devendra Prasad Singh (V.C., Bhagalpur); Dr. C. R. Mitra (Director, BITS, Pilani); Shri T. K. Tope (V. C., Bombay); Dr. Ramaranjan Mukherji (V. C., Burdwan); Dr. Sarup Singh (V.C., Delhi); Dr. A. N. Bose (V. C., Jadavpur); Dr. P. N. Masaldan (V. C., Jodhpur); Dr. S. K. Dutta (V. C., Kurukshetra); Shri N. D. Sudravadivelu (V. C., Madras); Dr. M. Varadarajan (V. C., Madurai); Shri R. P. Nath (V. C., Marathwada); Prof. D. Javare Gowda (V. C.. Mysore); Shri N. Narotham Reddy (V. C., Osmania); Dr. V. Singh (Prof. of Mathematics, Punjabi); Dr. R. C. Mehrotra (Prof. of Chemistry, Rajasthan); Col. H. S. Chandele (Acting V. C., Sagar); Dr. P. S. Lamba (V. C., Udaipur); Dr. Ramanath Mohanty (V. C., Utkal); Dr. S. M. Singh 'Suman' (V. C., Vikram).

Dr. Amrik Singh (Secretary, IUB) and Mr. R. K. Chhabra (Secretary, UGC) would also be attending the conference.

THIRD ALL-INDIA DRAVIDIAN LINGUISTIC CONFERENCE

The third All-India Dravidian Linguistic Conference was held at Dharwar under the joint auspices of the Karnatak University and the Dravidian Linguistic Association on June 20 and 21, 1973. The conference was attended by over 150 scholars from different parts of the country. The Universities of Delhi, Calcutta, Kerala, Madras, Andhra, Sri Venkateswara, Annamalai, Osmania, Sagar, Mysore and Bangalore had sent their delegates to the conference. About 80 papers on different aspects of Dravidian Languages were received. Six sessions on grammatical analysis, historical linguistics folklore and Tribal-languages, traditional grammer and teaching methods and stylistics termination and dialectics were held. Shri D. Devaraj Urs, the Chief Minister of Mysore State inaugurated the conference. Prof. G. J. Somayaji, the noted Telugu scholar presided over the two-day session. Dr. R.C. Hiremath, Head of the Kannada Department, Karnatak University and Secretary of the Dravidian Linguistic Association extended a hearty welcome to the participants on behalf of the Karnatak University.

The Dravidian Linguistic Association has sponsored a project on the comparative study of the grammer of four Dravidian languages. The work on the Tamil and Malayalam grammers has been completed by Prof. T. P. Meenakshisundaran, former Vice-Chancellor of Madurai University and Prof. K. N. Ezhuthachan. The funds for this project have come from the Governments of Tamil Nadu and Kerala. Sri Venkateswara University has provided accommodation for the Association office at Tirupati campus.

The Mysore Government is appointing a scholar to work on the Kannada Grammer. The work on Telugu Grammer has already been taken up. A second project for research into the dialects of Dravidian languages is being carried out in Kerala University.

The conference made the following recommendations: (1) A Central Institute of Dravidian languages be set up at Delhi so that the three-language formula can be effectively implemented, (2) An Indian Council of Linguistic Research in line with the ICSSR and ICHR be set up so that research in linguistic can be coordinated and well-planned, (3) The Dictionary projects like Historical Dictionary of Kannada should be financed with grants from the Ministry of Education and the University Grants Commission, (4) A survey of the dialects and the tribal languages belonging to the Dravidian family be made as early as possible and a centre be set up to train the necessary personnel for this work.

The Madras University has invited the conference to hold its fourth session at Madras.

COMMONWEALTH REGIONAL ENGINEERING CONFERENCE MEETS AT DELHI

The Institution of Engineers (India) organized the first Regional Meeting of the engineering institutions of the East Commonwealth Countries from 13-15 July at the New Delhi Centre. The conference was attended by eminent engineers from Australia, New Zealand, Malaysia, Singapore, Bangla Desh, Sri Lanka and India. The format of the technical education for engineers in commonwealth countries was the main theme for discussion. The other topics which came up for consideration were: (1) Exchange of Engineering experts; (2) Planning of Calendars for common technical activities; (3) Need of Technical Books in developing countries; (4) Reciprocal exchanges among the Eastern Engineering Societies; (5) Technological Unemployment; (6) Future urbanisation resulting from revolutionary changes in agriculture; (7) Continuing Education for Engineers; and (8) Technical Education and Training of Engineers.

The present form of technical education in the countries of the Eastern region is based on British pattern and is science-oriented. It has produced engineering graduates who seek security in routine government jobs. Opposed to this is the Soviet System—where the engineering education is technique-oriented which trains students to tackle the practical problems. Being under developed countries, this problem is common to all the eastern countries.

However, in planning and organizing the facilities for the national development, the practices and procedures vary according to the local talent, indigenous material and the extent of technology available in each country. In order to coordinate the activities of these countries and ensure that the progressive developmental measures undertaken by each of them receiving the broader audience and wider support, the Commonwealth Engineering Conference has striven to do its best through its technical forums such as the regional meeting just being held at Delhi.

XX ALL-INDIA LIBRARY CONFERENCE

The 20th All-India Library Conference was held on the campus of Osmania University from July 9 to 12. The conference urged the Government of India to declare optimum utilisation of library resources of the country as an urgent national task.

The conference was sponsored by the Indian Library Association, Delhi and hosted by the Academy of Library Sciences and Documentation, Hyderabad The four-day conference was inaugurated by the Andhra Pradesh Governor, Mr. Khandubhai K. Desai. The Chief Justice of the Andhra Pradesh High Court, Mr. Gopala Rao Ekbote presided over the conference which was attended by about 350 delegates from all over the country. The Governor in his address pleaded for the development of Indian language libraries. The Chief Justice suggested a central legislation on libraries to help organise a chain of libraries from the village to the national level. Prof. S. Bashiruddin, President of the Association also suggested a network of public libraries for the country. Shri N. Narotham Reddy, Vice-Chancellor of Osmania University released the conference souvenir and Mr. N. Bhagwandas, Chief Secretary of the Andhra Pradesh Govt. inaugurated a book exhibition on this occasion.

Some of the major recommendations of the conference include: Provision of reprographic, translation and interpretative services at appropriate national and regional libraries and reasonable postal concessions for circulation of such material, centralised acquisition, pre-natal classification and cataloguing, liberal inter-library borrowing and exchange of published material among libraries, development of libraries and development of education to be coordinated. Public library system should be introduced in all the states and the union territories to provide free library system helping life-long self education, and expenditure on public library services in a state or union territory be not less than 2.5 per cent of the total expenditure on education.

Radio Features on University

The All-India Radio, Hyderabad has started a regular monthly feature on Osmania University's various teaching and research projects. The following schedule has been agreed to: Parent-child project of the Psychology Department (August); Institute of Public Enterprise Projects (September); Speech Therapy and Linguistic Project (October); Exploration Geophysics Projects (November); and Regional Centre for Training in Municipal Administration for South India (December).

Postgraduate Courses in Evening Colleges

The Osmania University has been the first university in India to start an evening college in 1950-1951. Since then it has been providing better educational facilities for employed people. From this academic year, the university has introduced four more postgraduate courses at the Evening College of Arts and Commerce, Hyderabad. The postgraduate courses introduced are M.Com; M.A. M.Sc. (Mathematics); M.A. (Hindi); and M.A. (Urdu). The university is already conducting M.A. evening courses in English, Telugu, Economics, Political Science and Public Administration.

TRAINING COURSES FOR UNIVERSITY TEACHERS

Dr. K. Jayasena, Registrar of the University of Sri Lanka has prepared a blueprint for the systematic training of teachers in teaching. Dr. Jayasena in his memorandum submitted to the campuses states that the university teachers are now recruited purely on the basis of their academic achievements. However, obtaining a good pass at an academic examination or achievements in the field of research does not necessarily imply that a person will be a good teacher. It can no longer be accepted that a period of apprenticeship involving mainly the delivery of a large number of traditional lectures or experience perse as a teacher contribute to the making of a good teacher. It is also difficult to believe that a good teacher is born like a poet. Even if a few have the innate qualities of a good teacher, it would be hardly wise to rely on this to meet the need for University Teachers.

Dr. Jayasena has further recommended that the training course should be for a duration of three to four weeks and be made compulsory for all probationary assistant lecturers. The other teachers of the university who have previously not attended a teaching course in education be requested to attend courses of about two weeks duration and that provision be made for refresher courses to be conducted in one or more aspects of education from time to time.

A committee is being appointed to formulate a detailed programme for training in all the four campuses of the university.

INDIAN SCHOLARS IN BRITAIN

Among the 716 overseas scholars studying in Britain during 1971-72 under the Commonwealth Scholarship and Fellowship Plan, students and academic staff from Indian figured prominently. Making up the award holders were 597 scholars from all countries (including 89 from India) 81 medical fellows (45 from India), 17 senior medical fellows (11 from India), 27 academic staff fellows (10 from India), and four visiting professors (two from India).

VIOLENCE ON CAMPUSES

Participants in a relaxed mood

The State Character Youth Force, Andhra Pradesh arranged a seminar on campus violence during June in the Government Junior College, Kachiguda, Hyderabad. The postgraduate students from different universities participated in the forum.

In the course of discussion the following features were identified as the cause of violence on the campuses: (a) Refusal of university authorities to respond to grievances of students, (b) Conviction that democratic and non-violent methods would not yield results, (c) Defective education and examination pattern, (d) waning confidence in the impartiality of examinees; (e) Interference by politicians in elections of students unions and other matters, and (f) Incompetent education and absence of guidance to students from illiterate parents.

Mr. K. Ramachandra Reddy, Director Anti-Corruption Bureau of Andhra Pradesh in his keynote address said that it was not clear why the students did not organize demonstrations in a concerted way for genuine academic causes and against exploitation by external force and remained mute spectators when violence was let loose on the campuses. He asked the students not to act as super citizen and advised them not to take law into their hands. He wanted them to champion other's cases, involving social injustices.

Mr. Parthasarthy, Director of Youth Services acted as the Secretary and moderator of the Seminar. He was of the view that the dichotomy in the personality of the youth was the off-shot of the deficiencies in university education and the problem of unemployment prevailing all over the country. While stressing the need of dignity of labour and self-employment he advised the student community that their foremost concern should be towards achieving academic excellence.

Mr. Anand Swarup Khanna from Delhi University, initiating the discussion viewed that economic problems engulfing every family had their unhealthy reactions on the student sections and suggested that degrees and jobs should not go together.

Mr. V. Subramanian from Birla Institute of Technology and Science, Pilani, said that in their experience violent methods brought in immediate attention of the authorities towards their problems and added that incompetent teaching staff aggravated the restiveness of the students.

Mr. Suresh from Vikram University opposed the students of other colleges actively involving in the elections of other colleges.

Mr. S. V. Prasad from Sagar University suggested the need for constant consultation between authorities and students. He said that campus news should not be played up by the journalists and newspapers.

Miss M. Radhika from Madras University said that the plight of the youth-immature and emotional—was worsened for want of guidance from the society. She pleaded for a radical change in the examination system to eliminate malpractices and subjective valuation.

Mr. P. V. Ramakrishna Rao, Principal of the College, who is the member of the executive of the youth force desired that student associations should be the forum for academic advancement.

"Not wiretapping — he's cutting off his telephone lines now that it's admission time......"

PUNJAB VCs MEET EDUCATION MINISTER

The meeting of the Vice-Chancellors of the four universities of Punjab was convened by the Punjab Govt. on July 10 at Chandigarh. Shri Umarao Singh, Education Minister presided over the conference.

With a view to curbing malpractices in the admission to the privately run colleges in the State, the universities would now onwards nominate representatives on the selection committee of each college to supervise the admissions. It was also decided to incorporate the history of freedom struggle as a subject in the undergraduate and postgraduate history courses in the universities of the State. The meeting expressed deep concern over the steep fall in the number of science students in the state over the past two years, Suitable reservations for seats were recommended for the outstanding sportsmen.

VISITORS FROM AMERICA

A group of 24—American Teachers visited the Madurai University recently to study Indian culture and the Indian way of life. The study of Indian culture forms an important chapter in the studies of world culture in most of the American Universities. The young American students find Indian culture very interesting. The purpose of the visit of the team was to carry home first hand information on Indian way of life so that the students could be better informed instead of depending on textbooks alone. The group apart from going to the university and colleges spent some time visiting the houses of Indian families, villages, temples and Gandhigram.

The students of Fatima College arranged a mock wedding of a Brahmin couple for the visitors. They were also entertained to a variety programme of Indian dances which included demonstration of Kathakali, Odissi, Kathan, Kuchipudi, Manipur and Naga dances.

Talks on subjects like the Temple City, Caste System in modern India, Role of Women in India, Economic Problems and their effect on society and social reforms in India were also arranged.

U.P. VICE-CHANCELLORS MEET

A meeting of Vice-Chancellors was called by Mr. Akbar Ali Khan, the Governor of U.P. to consider the important measures to improve the functioning of the universities in the State. The Vice-Chancellors of nine State Universities attended the conference held at Lucknow on June 28.

The Governor in his address emphasised that the admission policy of the universities be such that indiscipline in universities is rooted out. He referred to the presence of a small section of "so-called students" who were neither keen nor properly equipped for higher education. They moved from one faculty to another without any fruitful purpose. The Vice-Chancellors were requested to lay down basic minimum standards for admission to various courses. Mr. Khan also pleaded for regulating the prolonged stay of students in the universities. He suggested a a voluntary code of conduct for teachers and a system of proper assessment of their performance. He wanted a better rapport between students and teachers to be established. The most urgent problem however which faced the universities was of the expeditious declaration of results and formulation of first statutes after the promulgation of the universities ordinances.

The consensus at the conference was that the annual examinations should be conducted on time and steps should be taken for the expeditious declaration of the results to avoid dislocation in studies in the coming academic session.

The policy regarding the admissions should be conducive to the improvement of the academic atmosphere in the universities and colleges. In this context the desirability of adopting some minimum standards for admission on merit were discussed. The universities were asked to suitably regulate re-admission of failed students specially in view of the rush for higher education. Simultaneously facilities for correspondence courses and private studies should be increased.

A five-member committee was constituted to make suggestions for reforms in the present examination system and the pattern of education. The committee was asked to especially consider the merits of internal evaluation coupled with external evaluation and the semester system in the light of the studies made by the Central Advisory Committee on education and other bodies.

For supplying adequate and proper information regarding availability of jobs, the conference suggested that immediate steps be taken to strengthen the existing employment liaison cells in universities on the pattern existing in the IITs. These cells could become effective instruments for providing guidance to students not only on career and jobs but also on self-employment schemes for which the Union and State Governments are providing financial assistance.

The conference also stressed the need for improving medical facilities and health care of the students of campus. It was decided to promote constructive activities among the students by encouraging them to take greater interest in social, cultural and sports activities.

The question of shortage of civil engineers also came up for consideration. It was felt that some suitable short duration conversion courses be devised for students of other engineering branches to qualify as civil engineers.

The Vice-chancellors were in favour of bringing about structural changes in the students unions on the pattern suggested by the Kothari Commission. However the meeting was divided on the timing of introducing reforms, which involved law and order problems.

Besides the nine vice-chancellors, three advisers to the Governor, the Chief Secretary and other officers of the State Education Department attended the meeting.

MAHILA VIDYALYA'S NOVEL EXPERIMENT

The Chancellor of Lucknow University, Mr. Akbar Ali Khan inaugurated the youth against famine campaign organised by Mahila Vidyalaya, Lucknow. The Camp was held at Paharnagar village in Gosainganj Block from May 4 to May 28. The site was chosen after prolonged consultation and discussions with the village community. It was agreed to construct a two and half furlong Kachcha link road connecting the canal through agricultural fields in the village. Fifty three students and thirty two village women volunteers joined the camp. This was a unique and novel experience for the college students as they had no knowledge and experience of this type of work. None of the students had ever lived in a village what to say of staying along there. In the beginnnig, students were very much discouraged by the villargers for starting this building programme as they doubted the capabilities of the city dwellers. But the zeal of the participants was such that the whole project was completed on time. It was heartening to see the young women students developing the understanding of the village problems and creating happy relations with the village women of different age groups. Closer ties of friendship were soon developed. A sense of social responsibility was aroused and the campers were full of confidence and were ready to fulfil their task. The camp taught them the dignity of labour and helped them to develop a team spirit. They learnt in no time to live together in an outside atmosphere away from their homes.

Panjab's Orientation Course

The Panjab University recently organized a three-day orientation course for the camp organisers and work supervisors of the universities of the region. Two hundred delegates from the Universities of Panjab Guru Nanak, Punjabi, Kurukshetra, Himachal and some voluntary organisations participated in this programme. Mr. Zail Singh, the Chief Minister of Punjab inaugurated the conference. He offered all assistance to the N.S.S. in organizing the youth against famine programme in the State. He exhorted the students to help the government in fighting the battle of poverty, hunger and scarcity in the country. Mr. Suraj Bhan, Vice-Chancellor of Panjab University also spoke on this occasion. He stressed the role of educational aspects in the multi-faceted significance of the programme. He said that the youth camps were an important experiment in reconstructing the existing educational system to meet the needs of the community. They provided an excellent opportunity for the students to be acquainted with the real problems of the village and help them to inculcate a sense of social discipline and responsibility.

YOUTH AGAINST FAMINE

Volunteers of Panjab University cleaning a Village near Chandigarh

Mr. N. Krishnaswami, National Director, 'Youth Against Famine' campaign urged the universities and voluntary organisations to involve college youth in surveying the impact of various schemes and plans executed by the government agencies in the rural areas. The educational youth should join hands with workers and peasants to build a broad based mass movement for achieving the aim of democratic socialism.

The Panjab University has organised 57 camps so far in its affiliated colleges. Each camp was of 15 days duration and involved on an average 75 students and 25 non-student youth. The programme in the camps consisted of about four hours manual work/social work in the morning, two hours programme of lectures and discussions in the afternoon and cultural and recreational activities late in the evening. Subjects of topical interest like Study of Drought Problems, Disciplined Youth, Bank nationalisation and Self Employment, Foodgrains Takeover, Universal participation in Games, Land Reform in India, Youth's Role in Adult Literacy, Rural Youth Clubs, Democratic Socialism and the Youth were debated.

CAMP IN THIRUMALA

The Youth Against Famine campaign in Tirupati was organised in early July. Mr. A. Valliappan, the collector of Chittor district presided over the function. Shri M.K. Ramakrishnan, the Registrar of the Universiy inaugurated it. He said that the universities today cannot function as ivory towers in isolated splendour. They should own neighbourhood responsibility and extend to the periphery the facilities which they have always enjoyed. He said that the student manpower-numbering over 3 millions should be channelised in productive work, so that they learn to respect the dignity of labour.

One hundred girl students and non-students participated in the afforestation programme organized in Thirumala. Dr. Venkataseshaiah of the University College of Engineering, Tirupati was overall incharge of the camps in the university area as the NSS programme coordinator.

NEW ADMISSION PROCEDURE FOR J.N.U.

The representatives of teachers and students of Jawaharlal Nehru University met recently to evolve an agreement on the question of students participation in the admission processes in various faculties of the university. It was agreed that Joint Student-Faculty Committee of each centre would discuss and work out principles of admission policy and procedures. Thereafter the evaluation of the academic merit of the student seeking admission would be the concern of the faculty of each centre only. However, the Student-Faculty Committee of the centre would meet again to review the admissions in the light of the principles and policies worked out earlier. But the evaluation of the academic merit has done by the faculty of the Centre would not be within its purview. In the case of the M. A. Course in Politics (International Studies), there shall be a Student-Faculty Committee at the school level with equal number of students and faculty members, which shall perform the functions of the Centre Student-Faculty Committee as outlined for other centres.

This arrangement was evolved at a meeting called at the instance of the vice-chancellors and is within the framework of the earlier decisions of the Academic Council of the university. While this decision has enabled the students to participate in certain spheres and bodies of the university, certain other areas relating to "faculty positions, recruitment, conditions of service and academic freedom and actual processes of evaluating academic performance and merit of students" are outside the scope of such participation.

VOCATIONAL COURSES GET POPULAR

The vocational courses at the College of Vocational Studies of Delhi University are getting popular. About four hundred students have joined the first year class of six job-oriented courses this year raising the total enrolment of college to 800. The college has sought to diversify higher education in such a way as to equip the students not only with knowledge but also some skills which will make him useful to society in a special way. These courses can be classified under three heads: knowledge-based, skill-based and postgraduate.

Six knowledge based courses have been selected in the first instance which are equivalent to the B.A. (Pass) course of the university. Each of them has three papers on a field one wishes to select. These courses are: tourism, book-publishing, office management, retailing and trade, insurance and shopkeeping and accounting.

In the first year, orientation lectures are arranged on subject, the second year introduces one paper and in the third year, a student has to acquire a 30-day on-the-job experience. Students have to go in groups to different private and public sectors institutions for this purpose.

Publishing is the most popular course in the college. There is a proposal to start a postgraduate diploma course at a later date.

B.E. PART-TIME COURSES

Sri Venkateswara University plans to start part-time B. E. courses in Sri Venkateswara University College of Engineering, Tirupati in Civil, Electrical and Mechanical branches from the current academic year for the benefit of diploma holders. The initial intake would be ten students per branch. Fifty percent of the expenditure would be met by the Andhra Pradesh Government for a period of five years. The recurring expenditure during this period would come from the University Grants Commission. After the expiry of five years entire expenditure would be borne by the State Govt. These courses would help in improving the professional status as well as the career prospects of the diploma holders in Andhra Pradesh.

GAUHATI'S DEPARTMENTAL ADVISORY COMMITTEE

The Academic Council of the Gauhati University in the light of the recommendations of the Education Commission (1964-66) decided to set up departmental advisory committee in various teaching departments for the head of the departments on academic matters relating to their departments. Initially it was left to the departments to decide the composition of the committee. But in view of the pressing demands for the creation of additional teaching posts, the Academic Council further enlarged the scope of the working of the advisory committees. Faculties now take into consideration the recommendations of the departmental advisory committees on determining the eligibility of any particular section of a subject for readership. At the suggestion of the Gauhati University Teachers Association, the composition of the departmental advisory committee of the university department has been further enlarged to include all whole-time members of the teaching staff of the department.

The areas of interest and activities of the departmental committees have been on the increase. Each departmental committee is now authorised to initiate proposals for the promotion of Lecturers and Readers in the department. Guidelines for the appointment of teachers have also been evolved and now Lecturers and Readers with long and efficient service coupled with higher academic attainments are considered for promotion by the appropriate authority as a special case.

The committees are functioning in a cordial atmosphere. The Heads of Departments consider themselves as one of the active member of the departments and try to understand the view of other members in the larger interest of the department. A record of the decisions of the committee are kept and presented to the Faculty.

COLLABORATIVE RESEARCH PLAN

Prof. R. S. Krishnan, the newly appointed Vice-Chancellor of Kerala University before assuming his office in Trivandrum said that he would do his best to raise the academic standards of the university departments. He also assured that he would get more funds for the university from various sources. With regard to the young Physics Department, he has his own plans. The tumba space research centre being located near Trivandrum could be the starting point for many collaborative reseach projects which could be mutually beneficial to university and the centres.

Prof. Krishnan had been the Head of Physics Department at the Indian Institute of Science, Bangalore since 1948 when Sir C. V. Raman retired. Among his outstanding research contributions was the discovery of new optical effect known as "Krishnan effect" in light scattering. He has published more than 108 original scientific papers. His research in various branches of solid state physics at the Indian Institute of Science have brought it recognition as the leading centre *of solid state research in India.*

SUMMER INSTITUTE IN HISTORY

The first Summer Institute in History for college teachers in South India was organised by the Department of History, Calicut University in collaboration with the University Grants Commission from May 15 to June 15. Dr. M.G.S. Narayanan was the Director. The nine other faculty members were represented from different universities: Dr. M.P. Sreekumaran (Calicut University), Dr. Romila Thapar (Jawaharlal Nehru University), Dr. N. Subrahmanian (Madurai University), Dr. A. Sundara (Karnatak University), Dr. K.V. Ram (Archaeological Survey of India), Dr. A.P. Ibrahim Kunju (Kerala University), Dr K. Rajayyan (Madurai University), Prof S. Gopalakrishnan (Sri Venkateswara University) and Prof. K.V. Krishna Ayyar.

The courses offered were: (1) Historiography of India (2) Problems of Kerala History and (3) Issues in Freedom Movement Research Methodology. Forty nine participants were selected from the colleges of the different states of South India.

The spirit of a joint exploration of the problems of history teaching and research with particular reference to South India animated the deliberations in the institute. The seminar method was adopted in the classroom and oral instruction was supplemented with slides, film shows, study tours etc. General lectures on topics of historical interest outside the curriculum were delivered by Dr. D.P. Dry (Military history), Prof. Sukumar Azhikode (History and Literature) and Dr. Kappn (Philosophy and History). Cultural programmes included the exhibition of traditional arts of Kerala. Group discussions about problems of teaching, research, syllabus and examination were conducted and recommended so that consensus among the participants were forwarded to the university for consideration Participants were also encouraged to prepare and present papers of topics to their choice.

In the course of his valedictory address, Dr. N. Subrahmanian, Professor of Ancient History at Madurai University highlighted the backwardness of history teaching in our colleges and stressed the need for a thorough revision of the syllabi and a pattern of question papers in snch a way as to make historical studies proplem-oriented. Prof. M.M. Ghani, Vice Chancellor, Calicut University, who gave away the certificates urged the teachers to initate reform in their field and promised to consider the recommendations favourably with a view to quick implementation.

Teacher-Improvement Programmes

The University Department of Commerce of Calicut University has prepared detailed scheme of Teacher Improvement programme under which industrial experts from specialised institutions will be freely connected and associated. The teachers will be encouraged to visit factories and business houses to observe their working so that their teaching may become more effective. Recently the syllabus for M. Com was revised with a view to make it more comprehensive and realistic. A new compulsory paper on Quantitative Methods was introduced and the contents of other courses were also made management oriented. The Indian Statistical Institute, Trivandrum and School of Management, Cochin conducted a three week intensive training programme in statistics and one week intensive programme in Principles of Management for updating the current literary and teaching methods.

SCIENCE POLICY AND PLANNING CONFERENCE HELD IN DELHI

A Summer School on Science Policy and Planning in India has been organized by the Council of Scientific and Industrial Research in collaboration with UNESCO from 23rd to 30th July. Over a dozen Asian countries have sent their representatives.

Prof. Drek J. de Solla Price, Department of History of Science and Medicine, U.S.A., Prof. Bright Schroder, University of Montrarl, Canada, Dr. Ina S. Spegal-Rosing. West Germany, Dr. Krober, GDR, Kowalewski, Poland, and Roy Michleood, U.K. are expected to participate in the discussions. The main topics for the discussions are: (a) science as an instrument of foreign policy, (b) social and cultural factosr in development of science, (c) choice and assessment of technology, and (d) science and society interface.

The object of the summer school is to provide an opportunity to the scientists and professionals of the developing countries to discuss debate and develop ideas and techniques relating to science policy and planning.

ENGLISH LANGUAGE TEACHING

In collaboration with the British Council, C.I.E., Hyderabad, U.G.C., and the Department of English, Panjab University conducted a Summer Institute in English Language Teaching for college teachers at Chandigarh from May 16 to June 26, 1973. Sixty college teachers from Punjab, Haryana, Delhi, U.P. and Chandigarh participated. Dr. Raj Kumar, Professor of English, Panjab University was the Director of the Institute. The feculty included Dr. D.D. Jyoti, Miss Uma Harsh, Mr. J.H. Thompson, Mrs. G.I. Singh, Mrs. H. Vasudeva (Regional Institute of English, Chandigarh), Miss Mary Schafer (Hampstead, London). Dr. M.V. Nadkarni (C.I.E.F.O., Hyderabad), Professor C.S. Bhandari (Dehra Dun), Mr. G.L. Narang (Kurukshetra University) and Mr. K.A. Kalia (Rohtak).

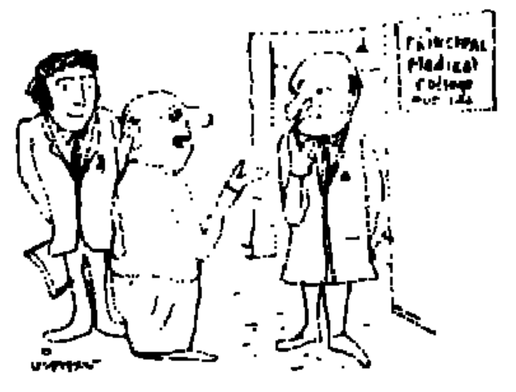
The following courses were taken up: (1) Elementary applied linguistics, (2) English Grammre and usage, (3) Phonetics and spoken English, (4) Methodology of second language teaching (with particular reference to the teaching of English in Pre-University and undergraduate classes), (5) Teaching materials: their preparation and use, and (6) Syllabus, text-books and examination reform.

The lectures were supplemented by demostration lessons and practical teaching sessions. Feature films and teaching films on literary and cultural aspects were also screened.

At the plenary session of the institute, the following recommendations were made: (1) The university should revise its English syllabus and include lexically and grammatically graded texts. Texts precribed should serve to develop relevant language skills. Literature part should be language oriented. Poems and chapters included in the textbooks should take into account students area of experience, (2) CIEFL/RIE be requested to set the model test papers which may be circulated to the paper setters, (3) The model examination papers be sent to the Vice-Chancellors of the various universities for consideration and adoption in 1974 examination. If the new concept is accepted, the model question papers be sent to all the colleges so that the teachers and students may be made aware of the changes, (4) For the teaching of English, the size of a class should not ordinarily exceed 50 students. For composition work it should further be split into smaller groups ranging from 15 to 20 students, (5) U.G.C. be requested to give additional grants to the colleges for the purchase of books/equipment (taperecorders, lingua-phone records, audio-visual aids, film projectors etc), relevant to the new techniques, (6) Internal assessment be introduced to test students' spoken English, (7) Two papers in English be introduced in B.A Part I, II and III for text and composition separately, (8) Textbooks prescribed should be changed after every three years, and (9) The university should prescribe some standard textboks on grammer and composition too.

PERSONAL

1. Shri N. Gopalkrishna has taken over as the Vice-Chancellor of Punjabrao Krishi Vidyapith, Akola w.e.f. June 2, 1973.
2. Dr. A. N. Kaul Adalati has been appointed Acting Vice-Chancellor of Jiwaji University w.e.f. July 2. 1973.
3. Prof. R.S. Krishnan has taken over as the Vice-Chancellor of Kerala University w.e.f. July 17, 1973.
4. Dr. C.D. Devanesen, Principal of the Madras Christian College, has been appointed as the Vice-Chancellor of North-Eastern Hill University w.e.f. July 19, 1973.
5. Prof. R. S. Sharma, Dean, Faculty of Arts, Patna University has taken over as Professor and Head of the History Department of Delhi University w.e.f. July 12, 1973.
6. Shri T.K. Toshy has been appointed the Registrar of Calicut University w.e.f. July 2, 1973.



"My son would rather pay the capitation fee for admission than marry your daughter".

CSIR ENLARGES JOB OPPORTUNITIES

The Council for Scientific and Industrial Research which has at present 40 laboratories under its control is planning to establish 30 more institutes and about 50 research centres including 10 computer centres at a cost of Rupees twenty crores. The Extension Programme envisaged by the CSIR seeks to increase more jobs, projecting a number of task oriented programmes keeping in view the national objectives of generating employment opportunities securing basic minimum needs of the common man and attaining the target of reliance in these technological areas. This objective is proposed to be achieved through exploitation of knowhow already developed and deliberate choice in favour of the manpower intensive technologies. The CSIR has already taken up the task of providing research design and consultancy service in chemical, engineering and technological fields and regional centres for testing servicing, repairing and training in the maintenance of the instruments, all of which offer immense employment opportunities to the middle level technicians and scientists. The Council has proposed the establishment of science-based industrial and technological clinics, which will catalyse the formation of focal points around which industries will be activated and employment opportunities created.

For effective coordination, the CSIR has regrouped its laboratories under six main categories: Physical, Chemical, Biological, Engineering, Fibre and Information. Six Councils have been set up to do the coordination work. The Five Year Plan has identified priority projects for each of the CSIR laboratories. After comparing it with the science and technology plan which has been prepared recently by the National Committee on Science and Technology, adjustments will be made accordingly.

In the field of extension work, particularly in the rural areas, CSIR has launched on a novel scheme of adopting a district (Karimnagar) in Andhra Pradesh. A number of laboratories will be working together for developing roads, giving designs for cheap houses and taking public health measures. Based on the success of this scheme, similar experiments will be conducted in other backward districts in the country.

WORLD PHYSIOLOGISTS TO MEET IN DELHI

The International Union of Physiological Sciences would be organizing the World Medical Conference of Physiologists and Biologists in New Delhi in October 1974. The conference is likely to be attended by few Nobel Laureates and leading medical professionals from over sixty countries.

Prof. B. K. Anand of the All-India Institute of Medical Sciences, New Delhi, who is internationally known for his work on Brain Research and Physiological aspects of Yoga is the President-elect of the 26th International Conference. The conference which meets every three years will be held in India and for second time in Asia having met in Tokyo during 1965. Besides the main conference to be held in New Delhi, twenty five satellite symposia would be arranged in other parts of the country. The conference will focus its attention especially to the environmental physiology, nutrition and brain development and fertility control. The latest advances in physiological science would be discussed in the twelve parallel scientific sessions, twenty five symposia, thirty special lectures and a numerous popular talks.

An exhibition of instruments, drugs and chemicals from India and abroad would also be organized. The Union Ministry of Health and the Book Trust are expected to contribute towards the expenditure of this conference.

W. H. O. GRANTS FOR A. I. I. M. S.

The World Health Organisation has selected the All-India Institute of Medical Sciences, New Delhi as one of the six institutions for its expanded programme of research development and research training in human reproduction on the basis of recommendations made by a 12-member Advisory Group under the Chairmanship of Dr. William Paul, Professor of Obstetrics and Gynaecology, University of Toronto in Canada. A sum of about rupees three crores would be allocated for the research projects under the programme which is part of the overall WHO research effort in the area of human reproduction, family planning and the health aspects of population dynamics. These programmes aims at development of a variety of safe, acceptable and effective methods for the regulation of human fertility.

The WHO programme is founded by voluntary contribution from the Danish International Development Agency for International Development Research Centre, Canada and the Ford Foundation. The other institutions chosen for the programme are in the Soviet Union, Sweden and Latin America.

ELEVEN NEW UNIVERSITIES PROPOSED

The University Grants Commission has under its consideration proposals for establishing eleven new universities in different parts of the country. The Ministry of Education is also considering the proposal for the establishment of a Central University at Pondicherry. The proposals received from various States are: University at Tripura, Two Universities in Maharashtra, University of Agricultural Sciences at Dharwar, Technical University for Mysore, Technological University for Tamil Nadu, University in Faizabad, a University each in the Garhwal division and Kumaon division of Uttar Pradesh, Sanskrit University in Andhra Pradesh and for a University in Goa.

THESES OF THE MONTH

PHYSICAL SCIENCES

Mathematics

1. Akhouri Baldeo Behari Lall. Study of certain transforms of distributions. Ranchi University.
2. Kundu, Hari Narayan. A few problems of inclusions in homogenetics and unisotropics in elastic and plastic solids. University of Kalyani.
3. Mahapatra, Jadupati Roy. Some problems in fluid mechanics with special reference to magnetic fluid mechanics. University of Kalyani.

Physics

1. Bhavsar, Gorakshanath Pandharinath. Theufretical and experimental study of polyatomic molecular vibrations from Raman and infrared spectra. University of Poona.
2. Ferkya, Vithal Kumar. Dielectric investigation of plasma. Indore University.
3. Gohel, Vinod Bhavanbhai. Study of potential energy functions of some Ionic Diatomic molecules. University of Baroda.
4. K. Parvati. Experimental studies in chlorine nuclear quadrupole resonance Andhra University.
5. Laxminarayana Bhat, H. Studies on growth and defect *properties of barite group crystals.* Sardar Patel University.
6. Mahesh Chander. Behaviour of colour-vision mechanisms under transient adaptation. Indian Institute of Technology, Delhi.
7. Mehta, Bharat Jaidevbhai. Optical study of etch and dehydretion figures on crystal surfaces. University of Baroda.
8. Sinha, Vijaya. Heat transfer in refractory solids and related problems at high temperature. Indian Institute of Technology, Delhi.

Chemistry

1. Badami, Bharati Virupaxappa. Synthetic studies in mesoionic compounds. Karnatak University.
2. Chatterjee, Amitava. Determination of the stability parameter: A solid phase study of the coordination compounds of bivalent metal fluoborates with mono and bi functional ligands. Ranchi University.
3. Deshpande, Dinkar Shankarrao. Synthesis and chemistry of some mixed heterocyclic systems. Marathwada University.
4. Deshpande, Yeshwant Hanmanthrao. Studies on rare earth complexes with systems containing oxygen donors. Marathwada University.
5. Malik, Balwant Kishan. Synthetic and analytical studies of some naturally occurring benzopyrone derivatives. University of Delhi.
6. Parekh, J.M. Radiation chemistry of sea-water & radioecology of sea weeds. Saurashtra University.
7. Patil, Jaywant Nathu. Psysico-chemical studies on some metal complexes. University of Poona.
8. Rishi, Ashwani Kumar. Metal chelates of 1-(2-pyridylazo)-2, phenanthrol. University of Delhi.
9. Sahu, Janardan. Aromatic mucleophilic substitution reactions. Berhampur University.
10. Sarma, P. Narayanana. Chemical investigation of tephrosia villosa pods and synthesis of some flavonoids as potential insecticides. Osmania University.
11. Varadan, Mala. Studies in the chemistry of certain plant pigments. University of Poona.

Earth Sciences

Subrahmanyam D. The instability of three dimensional zonal flow. Andhra University.

BIOLOGICAL SCIENCES

Botany

1. Ayachi, Shiv Shanker. Studies on the mycoflora wheat grains. Jabalpur University.
2. Batra, Amla. Raliation effects on the sensitilics of cells of edible plant tissues grown in tissue culture. University of Rajasthan.
3. Kaul, T.N. Physiological studies on genus morchella investigations on physiology, ecology and nutritional value of morchella is Jammu and Kashmir. University of Kashmir.
4. Manga, V. Cytogenetic studies of pearl millet (Pennisetum typhoides stapf & hubb) Andhra University.

Zoology

1. Deshmukh, Ramesh Sakharam. Some aspects of the biology of meritrix meretrix. Marathwada University.
2. Husaina Fakhruddin .Parasitic nematodes of earthworms and mulluscs. Marathwada University.
3. Thomas. M.M. Studies on Indian decapods. University of Kerala.
4. Sebastian, M.J. Copepod associates of South Indian Invertebrates. University of Kerala.

Medical Sciences

Harbans Singh. Role of insulin in thyroid function. University of Delhi.

Agriculture

Dahiya, Ishwar Singh. Effect of flow velocity and degree of water saturation on salt dynamics, sodium calcium exchange and precipitation reactions in salt affected soils. Haryana Agricultural University.

Veterinary Science

1. Murli Manohar. An experimental investigation into the state of circulatory collapse following release of ocdduded superior mesenteric artery in dogs. Haryana Agricultural University.
2. Sadana, Jivinda Ram. Studies on the pathology of respiratory diseases of swine. Haryana Agricultural University.
3. Sharma, Harendra Nath. Studies on crariotomics in goat (Capra hircus) with special reference to coenurosis. Haryana Agricultural University.

SOCIAL SCIENCES

Library Science

Mishra, Jogesh. History of libraries and librarianship in modern India since 1850. Ranchi University.

Psychology

1. Parlikar, Romeshchandra Kalyanrao. An investigation to study vocational maturity of high school students. University of Baroda.

2. Patel, Sumitra Lallubhai. An investigation to study self-esteem changes as a function of counselling therapy. University of Baroda.
3. Venkateswara Rao, T. A study of perceptions of medical college environment and professional socialization of medical students. Sardar Patel University.

Political Science

1. Bhutani, S.K. Israeli-Soviet relations, 1955-1967. Jawaharlal Nehru University.
2. Madhusudhan Reddy. K. Theory and practice of government in medieval Andhra Desai: C 1000—1400 A.D. Osmania University.
3. Roychowdhury, Sumitra. A critical and comparative study of some social and political concepts of Rabindranath Tagore and Mahatma Gandhi. University of Poona.

Economics

1. Bhandutia, Bhagvandas Jekisandas. Marketing of fruits in South Gujarat with special reference to marketing of mangoes. Sardar Patel University.
2. Charan, Awardan Shankerdanji. Economic evaluation of an irrigation project with special reference to the West Banas Project in Rajasthan. Sardar Patel University.
3. Harjinder Singh. Agricultural development in Ethiopia during three plan periods. University of Delhi.

Commerce

Pande. Krishna Chandra. Parosi rashtron ke sath Bharat ke vyaparik sambandhon ka vishleshanatmak adhyayan. University of Jabalpur.

Education

1. Bhagia. Sushma Nirmal. Perception of the characteristics of innovations related to their diffusion in the schools of Gujarat. University of Baroda.
2. Dattaray, Priyotosh. An investigation into the behaviour of adolescents in attaining some social concepts of the Higher Secondary syllabus of West Bengal. University of Delhi.
3. Jangira, Nand Kishore. Class room behaviour training of teachers and its relationship with some selected measures of pupils criteria of teacher effectiveness. University of Baroda.
4. Pangotra. Narendra Nath A study of the effect of feed-back from different sources on the class room behaviour of student teachers using the technique of interaction analysis. University of Baroda.
5. Quraishi, Zahirudin Mansoorudin. Personality attitudes and classroom behaviour of teachers. University of Baroda.
6. Surve. Dattajirao Sakharam. Social and political influence on Indian education during the later half of the 19th century. Sardar Patel University.
7. Vora, Isabbhai Adambhai. Critical study of the present position of teaching English in secondary schools of Gujarat State. Sardar Patel University.

HUMANITIES

Philosophy

Habeeb Tayeb El Edroos. The religious thought of Shah Waliullah. Osmania University.

Linguistics

Satish. Umadatt Sharma. The phonology and morphology of Jaunsari. University of Delhi.

Literature

Jotwani, Moti. Shah Abdul Latif: His life and work. University of Delhi.

Sanskrit

1. Ananthalakshmi, R. A study of mallinatha, the commentator. Andhra University.
2. Bhatt, Girjaprasad S. Devi Bhagawat: Ek sanskritik adhyayan. Gujarat Vidyapith.
3. Bindra, Satwant Kaur. Sanskrit ke rasparak muktakon ka smalochanatamak adhyayan. Jabalpur University.
4. Mishra, Ravikant. Purano mein ayurved. Darbhanga Sanskrit Vishwavidyalaya.

Hindi

1. Ahirwal, Lal Chand. Dwivediyugeen sahitya mein nari. Vikram University.
2. Baraiya, Jashvantsinh Sabhai. Satthotri Hindi-Gujarati kavita (1960-1970): Ek tulnatmak adhyayan. Sardar Patel University.
3. Gulanchand Indrasan Singh. Hindi aur Gujarati pragativadi kavya ka tulnatmak adhyayan. Sardar Patel University.
4. Mishra, Mahavir Prasad. Shekhavati lok sahitya: Ek adhyayan. University of Rajasthan.
5. Nayyar, Adarsh. Hindi katha sahitya ka Punjabi katha sahitya per prabhav University of Delhi.
6. Rajagopalan Nair, C.P. Ramacharitha Manas mein advaith aur bhakthi ka samanvay. University of Kerala.
7. Tripathi, Awadhnarain Ramdaur. Nayee kavita mein vayaktik chetna. Sardar Patel University.

Urdu

Farzana Begum. Deccan-Kee-Nasri dastanain. Osmania University.

Architecture

Sastry, Tallavajjhala Patanjali. The chalukyan architecture of Kurnool District. University of Poona.

History

1. Chakrabarty, Deb Kumar. Monbhum under the East India Company. Ranchi University.
2. Shiviah, Bhargavi. Krishnadeva Raya: His life and achievements, Karnatak University.
3. Sinha, Bipin Bihari. Some aspects of socio-economic life in Chhotanagpur 1858—1935. Ranchi University.
4. Upadhayay, Vidyanand. Brahmanas in ancient India. Magadh University.

MYSORE VARSITIES BILL

Continued from page 7

seems to have a distrust in them. Representation given to the Municipal Corporation and Chamber of Commerce has been taken away. To enlarge the popular base of the University they could have retained them, and in addition could have given representation to other democratic bodies.

If it is the intention of the Government to have only one proto-type of a university to function in the State, then, it would be meaningless to have three universities, three-Vice-Chancellors and three separate establishments. I do not know whether the Government of Mysore is aware of the fact that the University Grants Commission would not touch institutions even with a barge-pole where there is no autonomy. The Mysore Government does not seem to have learnt any lesson For a considerable length of time, the Mysore University could not avail of the grants of the UGC because of its control by Government. To take away the autonomy of universities would inhibit the usefulness of free institutions.

Even a cursory perusal of this Bill leads to the conclusion that the autonomy now enjoyed by the universities is sought to be taken away. The Government can repair the damage even at this late hour, if only it decides not to stand on prestige. It can introduce a fresh Bill after consulting eminent educationists in the State.

BOOK NOTES

1. Bashir Ahamad and Blaug, Mark, *Ed.* Practice of manpower forecasting: A collection of case studies. Amsterdam, Elsevier, 1973. xi, 345p.

   The discipline of manpower forecasting has developed over the last decade. This volume for the first time takes a critical look at its assumptions, methods and results. It is concluded that nearly all the exercises have been monumental failures, both conceptually as also on the simple practical test of whether in the event they were right. Offers proposals about how forecasting of qualified manpower needs can be improved.

2. Feldman, Kenneth A., *Ed.* College and student: Selected readings in the social psychology of higher education. New York, Pergamon (c 1972) ix, 492p.

   A sequel to Dr. Feldman's earlier study that he undertook with Dr. Theodore M. Newcomb entitled, 'The impact of college on students' (San francisco, Jossey-Bass, 1969) the present collection of readings represents a variety of viewpoints on a delimited range of topics bearings in way or other on social psychology of higher education.

3. Hartman, Robert W. Credit for college: Public policy for student loans. New York, McGraw-hill (c 1971) ix. 152p.

   Views loans not only as a form of subsidy but also as means to increase the ability of students to share more of the costs than they do now. Loans thus become an important element in the financial support of higher education. The present study provides a comprehensive analysis of the various existing and proposed loan programmes in the United States. Different roles are reviewed and an assessment of the effects of various pole assumptions on loan volume and repayment obligations attempted.

4. Hodgkinson, Harold L. Institutions in transition: A profile of change in higher education. New York, McGraw-Hill (c 1971) xvii, 295p.

   Old notion that America's universitis and colleges are constitutionally and temperamentally resistant to change has been falsified by the present study of over 1,200 changing institutions of higher education. This book is about what those changes are, who initiated them, who resisted them, and what forces in and out of higher education encouraged or impeded them.

5. Kuppuswamy, B. Social change in India. Delhi, Vikas, (c 1972) vi, 355p.

   This volume attempts to assess the social changes in the country during the last quarter of the century. Dr. Kuppuswamy commences his study with elucidation of the concept of social change and the various factors— technological, economic and cultural that induce it. The areas where social change has taken place, such as, the caste system, emancipation of women, development of mass media etc., are examined. An attempt is also made to show how social change can be quantified in order to facilitate objective studies.

6. Lee, Eugene C. and Bowen, Frank M. Multicampus university: A study of academic governance. New York, McGraw-Hill (c 1971) xix, 481p.

   This comprehensive analysis of nine multicampus universities which enroll over 40 percent of all college and university students in the United States, explores the roles and relationships of the trustees, faculty members, students, alumni, legislators and the public within these institutions. Problems and issues of planning, admissions and transfers, personnel administration, public and governmental relations, and budget preparation are among the themes given special attention.

7. Rauch, David B. Priorities in adult education. New York, Macmillan (c 1972) xii, 241p.
   Based on the personal experiences of the contributors each of whom has been directly involved in planning and carrying out some of the most successful and creative adult education projects in the United States, 'Priorities in adult education' attempts to give direct and practical help in forming and improving programmes in continuing education to meet the needs of both the individual and the community.

8. Sanderson, Michael. Universities and British industry 1850-1970. London, Routledge & Kegan Paul, 1972. x, 436p.
   This study is concerned with the impact of industry on the development of British universities from the 1850s upto 1970, and with the contribution of the universities to industry through scientific research and the supply of graduate skills.

9. Singhvi, L.M., *Ed.* Youth unrest: Conflict of generations. Delhi, National (c 1972) xvi, 451p.
   Extensively revised and considerably enlarged second edition of 'Student unrest: Problems and perspectives' (Published by the Institute of Constitutional and Parliamentary Studies in 1956) brings together in a single accessible volume a wide range of insights and analyses, and the prescriptions and remedies on the subject of youth unrest in India.

10. Wall, W.D. and Varma, V.P., *Ed.* Advances in educational psychology 1. London, University of London Press (c 1972) vii, 189p.

    This collection of papers which has been offered as a tribute to Prof. P.E. Vernon build into a coherent statement of advances, in our knowledge of the domains of intellectual ability and cognitive development.

CLASSIFIED ADS.

UNIVERSITY OF JAMMU

NOTICE

Applications on prescribed forms are invited for the following posts to reach the undersigned on or before August 31, 1973:—

1. Two professors (Rs. 1100-1600) One each in Chemistry (preferably) in Organic Chemistry with specialisation in Chemistry of *natural products) and* Mathematics.

The post of Professor of Mathematics is purely temporary and has fallen vacant *owing to the deputation of the perma*nent incumbent to the State Government and the arrangement will cease as soon as his deputation is terminated. Against the post of Professor of Mathematics appointment of a Reader may also be *considered.*

2. Lecturer in Economics (Rs. 400-950).

For full details and prescribed forms, apply by sending a *postal order for Re.* 1/- drawn in favour of the Registrar, University of Jammu—180001, cashable at Jammu post office.

K.K. GUPTA
REGISTRAR

OSMANIA UNIVERSITY
HYDERABAD—(A.P.)

ADVERTISEMENT NO. 20/1973.

APPLICATIONS, *in the prescribed* form together with a Registration fee of Rs. 5.00 are invited for the following posts in the University Service so as to reach the undersigned on or before 20-8-73:—

1. Lecturer in Law—Rs 400-950.
2. Associate Lecturer in Law—Rs 300-600.

QUALIFICATIONS

1. Lecturer in Law

Atleast a Second Class Master's Degree in Law with at least two years teaching experience OR a first class Bachelor's *Degree in Law* with *Four Years' teach*ing experience.

2. Associate Lecturer in Law

Atleast a Second Class Master's degree in Law OR a first class Bachelor's Degree in Law with Two years teaching experience.

AGE : Post Nos. 1 and 2: Not above (35) years.

The application form together with full details of qualifications, experience, etc., can be had from the Director, Department of Publication and University Press, Osmania University, Hyderabad-500007, A.P, on payment of Rs. 3.00 in person or by M.O. or by Postal Order **UNCROSSED**, together with the *charges* for ordinary or registered post, as required by the candidate, made payable to the Director.

MANOHAR ANDRIAH
REGISTRAR

गोरखपुर विश्वविद्यालय, गोरखपुर

विज्ञापन

निम्नलिखित रिक्त स्थानों के पूर्ति के लिए आवेदन पत्र आमन्त्रित किए जाते हैं। आवेदन विश्वविद्यालय द्वारा निर्धारित प्रारूप पत्र पर किया जाना चाहिए। आवेदन के प्रारुप पत्र की आठ प्रतियां कुलसचिव के कार्यालय से ५/- प्रोफेसर एवं २/- प्रवक्ता पद के लिए नगद या कुलसचिव के नाम का पोस्टल आर्डर भेजकर प्राप्त की जा सकती है। आवेदन कर्ता यदि किसी संस्था में नियुक्त है तो आवेदन पत्र नियोक्ता द्वारा अग्रसारित होना चाहिए। आवेदन पत्र कुलसचिव के कार्यालय में २५ अगस्त, १९७३ तक अवश्य पहुंच जाना चाहिए।

नियुक्त होने वाले अभ्यर्थी को संचित निधि प्राप्त करने की सुविधायें विश्वविद्यालय के नियमानुसार प्राप्त होगी। सेवा की सामान्य शर्ते सेवा संविद पत्र में निर्धारित नियमों के अनुसार होगीं। नियुक्त अभ्यर्थी को संविद पत्र पर कार्यभार ग्रहण करने के पूर्व या उसके बाद यथा शीघ्र हस्ताक्षर करना होगा।

१—प्रोफेसर एक (स्थायी) शिक्षा विभाग
वेतन रु० ११५०-५०-१३००-
६०-१६००/- प्रति मास

अर्हतायें :

अभ्यर्थी को अपने विषय का ख्याति लब्ध विद्वान होना चाहिए। उसके द्वारा लिखित उच्च स्तरीय शोध कार्य प्रकाशित होना चाहिए। उसे अध्यापन एवं शोध कार्य निर्देशन का पर्याप्त अनुभव होना चाहिए।

२—प्रवक्ता एक (स्थायी) विधि विभाग
वेतन रु० ४००-४०-८००-
५०-९५०/- प्रति मास

अर्हतायें :

(अ) स्नातकोत्तर उपाधि प्रथम श्रेणी में, या
(ब) सम्बन्धित विषय में डाक्टर आफ फिलास्फी उपाधि के साथ उच्च द्वितीय श्रेणी

पर्याप्त अध्यापन एवं शोध कार्य में अनुभव रखने वाले अभ्यर्थी को वरीयता दी जायेगी।

उपर्युक्त दशाओं में चयन समिति द्वारा अध्यापन तथा उच्च स्तर के शोध कार्य के आधार पर उपर्युक्त अर्हताओं के संबंध में शिथिलता बरती जा सकती है।

अभ्यर्थी को साक्षात्कार के लिए बुलाये जाने पर मार्ग व्यय स्वयं वहन करना पड़ेगा। विज्ञापित पद के निमित्त विशेष योग्यता रखने वाले अभ्यर्थी को चयन समिति *अग्रिम बढ़ोत्तरी* देकर प्रारम्भिक वेतन दे सकती है। विज्ञापित पद पर नियुक्त करने या न करने के लिए विश्वविद्यालय प्राधिकृत है। अभ्यर्थी द्वारा या अभ्यर्थी की ओर से किसी प्रकार की सिफारिश का किया जाना उसकी अयोग्यता का सूचक माना जायेगा।

भोलेन्द्र सिह
कुलसचिव

RAVISHANKAR UNIVERSITY
RAIPUR

ADVERTISEMENT

Applications are invited on the prescribed forms (seven copies) obtainable from the Registrar on payment of Rs. 5/- by crossed Postal Order for the post of REGISTRAR in the scale of pay Rs. 1000-50-1500/- or as may be provided in the *Statutes under preparation.*

Minimum Qualifications

1. The applicant should not be more than 50 years of age on 1-8-1973.

2. Atleast a Second Class Master's degree of an Indian University or equivalent qualifications recognised by the Inter—University Board of India.

3. (i) Ten years teaching experience in a University or in a College affiliated to a University or in an institution having the status of a University,

OR

(ii) Seven years experience of working in a University or in an institution having the status of a University as an employee not below the rank of Assistant Registrar, *OR*

(iii) Ten years administrative experience in Government service of gazetted rank.

4. Proficiency in Hindi.

Higher initial salary may be given to an exceptionally qualified person.

The appointment will be initially on probation for a period of one year which may be extended by another year. No deputation will be permitted.

Applications alongwith copies of testimonials should reach the Registrar on or before 16-8-1973. Those who are in employment should submit their applications through proper channel.

The applicants when called for interview will have to bear their own expenses.

T.B. NAIK
REGISTRAR

UNIVERSITY OF SAUGAR
ADVERTISEMNT NO R. 4/73

Applications on the prescribed form (obtainable from the undersigned) accompanied by a self-addressed envelope and a postal order of Rs. 5-00 in each case are invited for the following posts so as to reach the undersigned by 16th August 1973.

Department of Pharmaceutical Sciences

1. **One Professor** (Permanent) in Pharmacognosy and Phytochemistry, sanctioned by the U.G.C.
2. **Two Readers** (Permanent), One in Pharmaceutics and one in Pharmacognosy and Phytochemistry, sanctioned by the U.G.C.
3. **One Reader or Assistant Professor in Pharmacology** according to qulifications (Permanent).
4. **Two Assistant Professors** (Permanent), one in Pharmaceutics & one in Pharmaceutical Engineering, sanctioned by the U.G.C.
5. **Two Instructors** (Temporary).

Department of Anthropology & Sociology

1. **One Asstt. Professor** in Physical Anthropology (Permanent).

Department of Botany

1. **One Asstt. Professor** (Permanent).

Specialisation: in any one of the following subjects:—Ecology, Microbiology or Plant Pathology.

Department of Philosophy

1. **One Asstt. Professor** (Temporary) in a leave vacancy.

QUALIFICATIONS

Professor: (i) A Doctor's Degree and/or high academic attainments with wide recognition for scholarship and original contribution to the subject.

(ii) Published work to their credit.

(iii) Extensive experience of conducting and guiding research.

(iv) At least 10 years experience of teaching post-graduate classes.

(v) A good working knowledge of Hindi both written and spoken.

Reader: (i) A first or second class Master's degree or its equivalent.

(ii) A Ph.D. or higher research degree or published work of merit or experience of having successfully guided research work leading to a research degree.

(iii) At least 7 years experience of teaching post-graduate classes.

(iv) A good working knowledge of Hindi both written and spoken.

Assistant Professor: (i) A first class Master's or an equivalent degree recognised for the purpose by the University.

OR

A second class Master's degree or an equivalent degree recognised by the University with at least 2 years teaching experience of post-graduate classses preferably at a University or with recognised research work.

(ii) He must be able to teach in Hindi.

For the post of Asstt. Professor in Pharmaceutical Engineering the candidate should hold a First class Bachelor's degree in Chemical Engineering or Mechanical Engineering. Preference shall be given to those who possess teaching experience.

Instructor: (i) A second class Bachelor's degree in Pharmacy.

(ii) A good working knowledge of Hindi both written and spoken.

SALARY SCALE

Professor: Rs. 1100-50-1300-60-1600.

Reader: Rs. 700-50-1250.

Assistant Professor: Rs. 400-40-800-50-950.

Instructor: Rs. 200-15-290

COL. H.S. CHANDELE
REGISTRAR
UNIVERSITY OF SAUGAR,
SAGAR

KURUKSHETRA UNIVERSITY
KURUKSHETRA (HARYANA)
ADVERTISEMENT NO. 6/73

Applications are invited for the following posts in this University :—

Lecturers in

(1) History (One).

(2) Physical Education (One)

(3) Botany (Three)

(4) Commerce (One).

(5) Chemistry (One).

(6) Economics (Two).

(7) English (One).

(Rs. 400-40-800-50-950).

Qualifications :

(a) *General* : (i) A 1st or 2nd class Master's Degree of an Indian University or an equivalent qualification of a foreign University in the subject concerned; (ii) two years' experience of teaching at a University or a College, relaxable in very special cases.

(b) *Specialization*

History : (i) Competence to teach History of China and (ii) Knowledge of Modern Indian History.

Commerce : Competence to teach Book Keeping & Accountancy.

Knowledge of Hindi will be an additional qualification for the above posts.

30% of posts are reserved for Ex-emergency Commissioned Officers/Ex-Servicemen. They are also exempted from the payment of application fee of Rs. 5/-. If no candidate is found suitable for these reserved posts, the posts willl be filled from other candidates. Applications (through proper channel in the case of persons already in employment) on plain paper, giving name of candidate, Father's name, date of birth, Educational Qualification (with the name of the University, Year, Division and % of marks). and experience (with the name of the Employer, Designation, duration of appointment and salary drawn), accompanied by attested copies of certificates/testimonials and a Cross Postal Order for Rs. 5/- drawn in favour of the Registrar, Kurukshetra University, and payable at the Kurukshetra University Post Office should reach the Registrar on or before 18-8-1973.

K. R. CHAUDHRY
REGISTRAR

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by Chaitanya Deva 24x18 cms. Pp. 130 Rs. 10.00

This profusely illustrated volume presents an introduction to the classical music of India—both the Hindustani system of the north and the Karnatak of the South—and is intended to serve as a guide to readers, Indian and foreign, for the appreciation of Indian Music. In its 10 chapters the volume deals with all the significant features of Indian music, namely, melody and rhythm and form and style covering both vocal and instrumental. The note on the contribution of pioneering composers and musicologists lends further value to the volume. The reader will find the discography at the end particularly useful.

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DIRECTOR, PUBLICATIONS DIVISION
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davp 73/165

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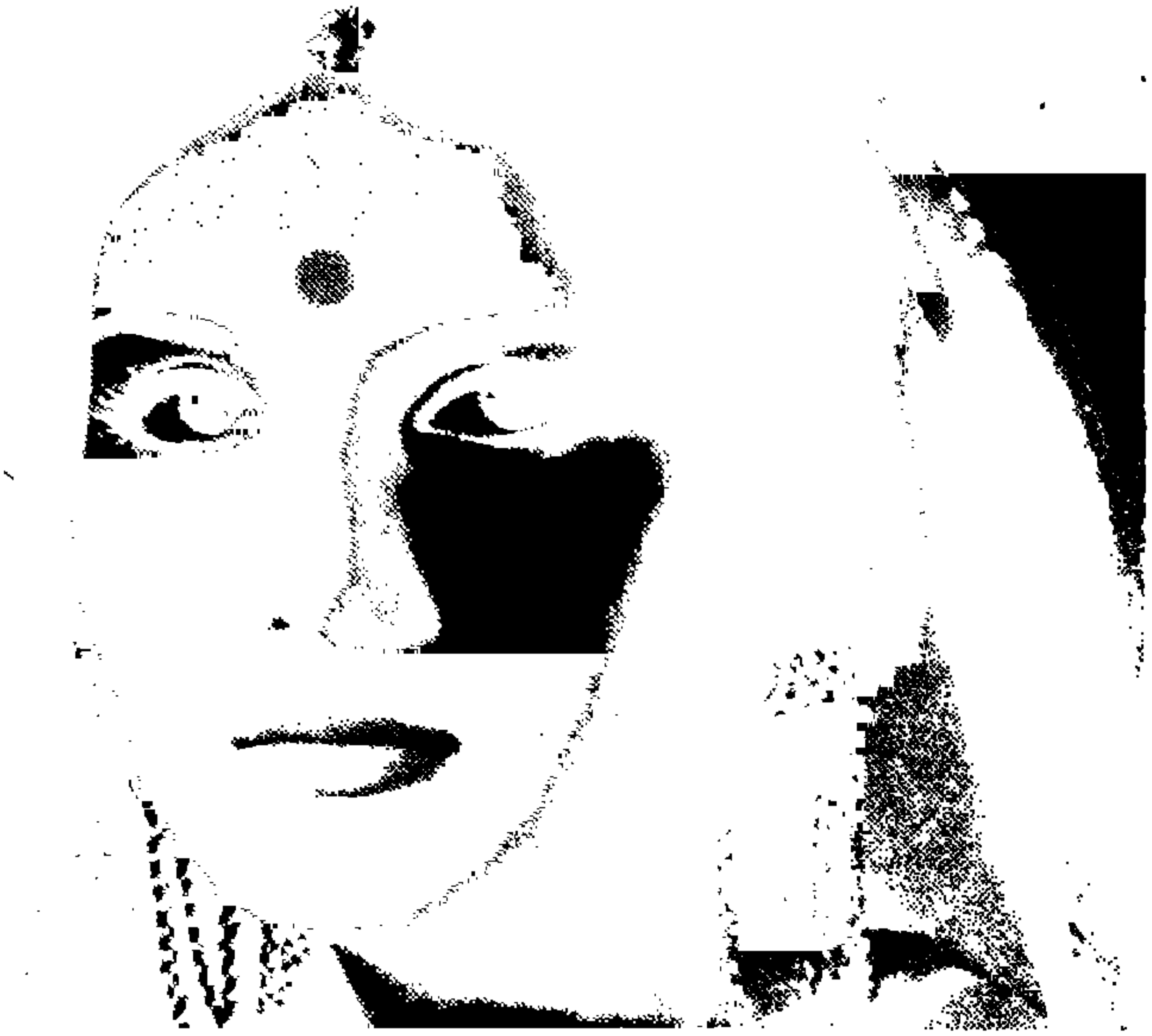

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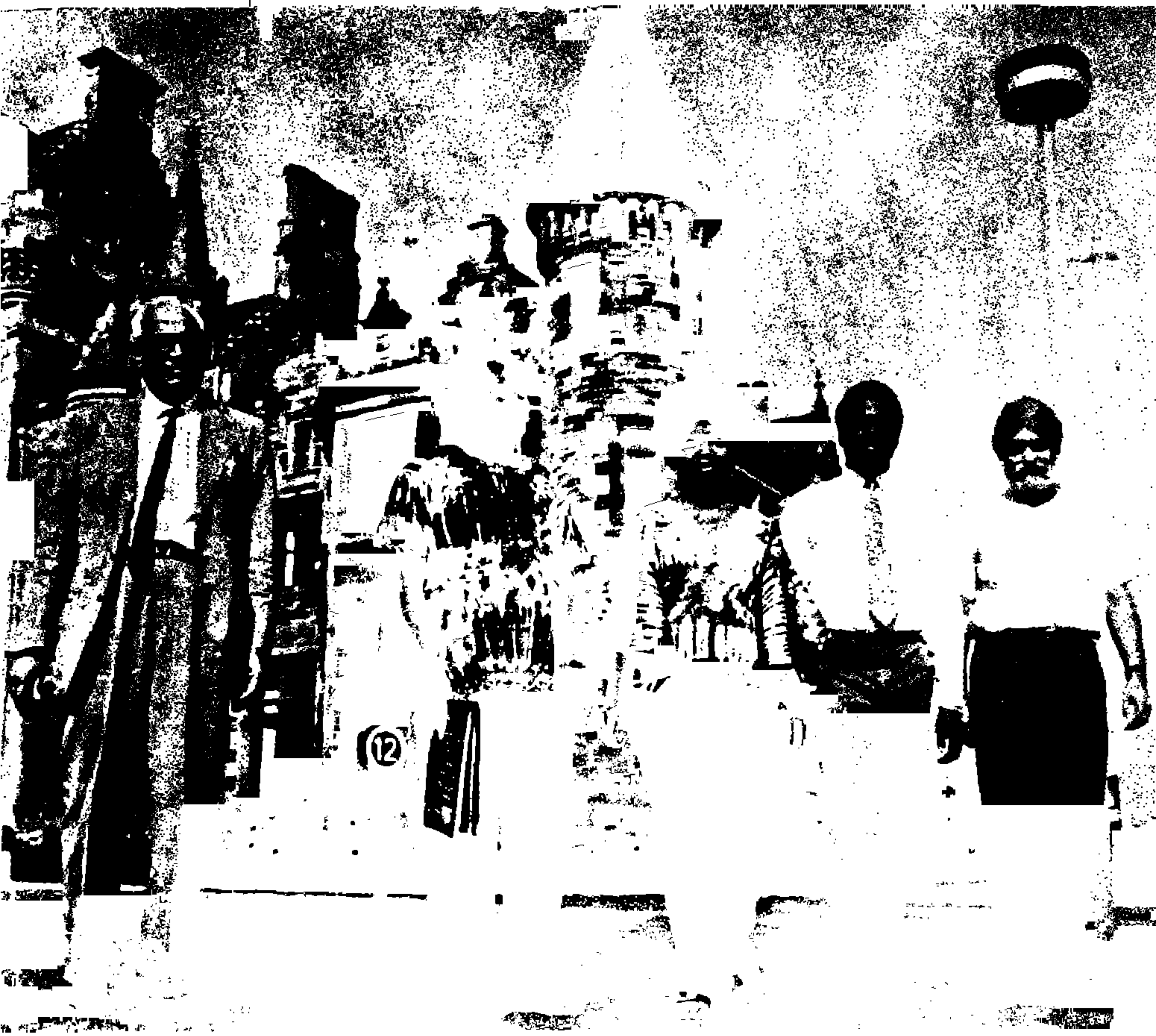
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CLASSIFIED ADVERTISEMENTS

SHIVAJI UNIVERSITY
KOLHAPUR
(Maharashtra State)

Applications are invited for the following posts:—

Department **Posts**

(1) **Chemistry**: 1 Reader (Organic)

(2) **Mathematics**: 1 Lecturer (Functional Analysis, Topology. Abstract Algebra, Operation Research).

(3) **Geography**: 1 Lecturer (Applied Geography).

(4) **English**: 3 Lecturers (Out of these one Temporary Post) (Preference will be given to candidates who have specialized in at least one of the following (1) English Language and English Language Teaching (2) Old English and Middle English (3) Indian Writing in English).

(5) ***Botany***: 2 Lecturers (Angiosperms. Physiology or Cytology).

(6) **French**: 1 Lecturer

(7) **German**: 1 Lecturer

(8) ***Physics****: 1 Lecturer (Theoretical* Physics).

(9) **Library Science**: 1 Lecturer

Pay Scale:

(1) Reader: Rs. 700-50-1250

(2) Lecturer: Rs. 400-40-800-50-950.

Applicants for the post of Reader must possess at least the minimum *qualifications & experience as prescribed* below:—

(a) A Doctorate degree of any recognised University, Indian or foreign (in subjects or allied subjects in which recognition is sought): with at least Second class either at Bachelor's or Master's Degree and published independent *research* work; OR

(b) Published independent research work of acknowledge merit (books and papers) with at least Master's Degree in Second class of any recognised University (in subjects or allied subjects in which recognition is sought). (c) Five year's experience of teaching graduate classes at Principal level.

OR

(d) Independent Research work of acknowledged merit on their own initiative.

Applicants for Reader's post should indicate whether they would accept the appointment as Lecturer.

Applicants for the post of Lecturer must possess at least the minimum qualifications and experience as prescribed below:—

(a) A *First or Second class Master's* degree (with the subjects or the branch of science in which *recognition* is sought).

OR

(b) A Doctorate Degree with at least Second class Bachelor's Degree (with the subjects or the branch of science in which recognition is sought).

OR

(c) Any other equivalent degree or degrees of an Indian or a Foreign University (with at least allied subjects or the allied branch of science).

(d) Five year's experience of teaching graduate classes at the special or Principal level (wherever applicable).

(Note:—Cases of highly qualified persons holding Doctorate Degree and having special qualities will be considered on their own merits).

Applicants for the post of Lecturer in Library Science must possess at least the minimum qualifications and experience as prescribed below:—

(a) First/Second class B.A./B.Sc./B. Com. Degree plus First or Second class M. Lib. Science Degree (two year course).

OR

(b) First/Second class M.A./M.Sc. Degree and First or Second class B. Lib. Science or one year Diploma course in Library Science.

(c) Five year's experience as Librarian or of working in a responsible professional capacity in a Library.

(d) Experience of teaching to the students of Diploma/Degree in Library Science will be considered as an additional qualification.

Age Limit: The upper age limit for appointment to teaching posts under the University is ordinarily 45 years but it may be relaxed in special cases.

Probation: Selected candidates will be on probation for a period of two years at the first instance. If necessary the same will be extended by a year or two.

Prescribed application forms (7 copies), can be had from the University office. Desirous candidates are requested to send *Indian Postal Order of Rs. 3/- alongwith self addressed envelope of* 0-75 *ps*.

Applications should reach the Registrar, Shivaji University, Vidyanagar, Kolhapur-416004, on or before *15th September, 1973*.

USHA ITHAPE
REGISTRAR

UNIVERSITY OF DELHI
DELHI

Advertisement No. S.C./73/1 dated 22-8-73.

Applications in the prescribed form are invited for the following posts:

Sl. No.	Department	Designation of the post
1.	History	One Professor and three Readers for each of these Department
2.	Political Science	
3.	Philosophy	
4.	Sanskrit	
5.	Mathematics	
6.	Business Economics	

7. Commerce—Three Readers

8. English—One Reader

The scales of pay of the posts are: Professor: Rs. 1100-50-1300-60-1600; *Reader—Rs. 700-50-1250.*

All posts carry dearness, city compensatory. house rent allowances and retirement benefits as admissible under the rules in force from time to time.

Qualifications

(a) **For Professorship**

A scholar of eminence.

Independent published work of high standard and experience of teaching post-graduate classes and guiding research for a considerable period desirable.

(b) For Readership

Good academic record with a first or high second class Master's Degree in the subject concerned with a Doctor's degree or equivalent published work.

Independent published work (in addition to the published work mentioned above) with at least 5 years teaching experience in Honours/Post-graduate classes essential.

NOTE: For Professorship in Business Economics. candidates *specialised in* either of the disciplines. Commerce or *Economics*. will be eligible.

Specializations for Readerships**:**
For Commerce

1. Personnel Management and Industrial Relations; 2. Economic Environment & Policy; 3. Organisation Theory 4. Taxation/Taxation Laws. 5. Statistics and Quantitative Methods.

For Business Economics

1. Operations Research or Econometrics; 2. Managerial Finance, Accoun-

UNIVERSITY
NEWS

Vol. XI
No. 9 ★ September 1973

A Monthly Chronicle of Higher Education

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★

Opinions expressed in the articles and reviews are individual and do not necessarily reflect the policies of the Board.

Editor : Anjni Kumar

Sports Medicine

The recent death of Jarnail Singh at Ludhiana while running the cross country race has shocked everybody. The cross country meet was arranged during the worst possible season of the year but more deplorable is the fact that no medical aid was readily available on the spot. The Railway Medical Officer and his staff in spite of their best efforts could not save the patient as he was brought too late to the hospital. The precious life could have been saved if adequate precautions had been taken and sport doctors were available for athletes. There is no denying the fact that our athletes are not given the right advice about their diet before such a meet. Nor is their medical check up done thoroughly at regular intervals. A time has come when our athletes should be given adequate medical protection and sports medicine should be given due recognition.

In the western countries sports medicine has long been recognised as a medical speciality and the sports physicians play a vital role in putting the athletes in top physical condition and sending them back to the arena in the shortest possible time incase of a mishap. Most of the American universities have a team of physicians specialised in sports medicine to look after the university athletes. Plenty of research work has been done on the different aspects of sport medicine. Besides treating injuries in the shortest possible time the physicians try to rehabilitate them as early as possible. Though the sports medicine continues to be the oldest scientifically investigating field it has vastly developed into a regular science only recently. We have not paid much attention to this medico-biological science. Except in socialistic countries, where sports and games are compulsory in colleges and factories, there is no set up of uniform theory of sport or planned scope of physical education, especially in under-developed and developing countries like India in the field of sports science. Initially veteran athletes doubted the authority of doctors helping in the selection of teams but it has been proved on the basis of the recently concluded Olympic games that sports doctors have a leading part in guiding and planning of national teams.

The clients of sports medicine are no longer top athletes. Some sports doctors work in rehabilitation team. Others are consulted by health authorities in planning exercise programmes for citizens of all ages. Sports medicine should attract eminent medical men, renowned scientists, physical educationists, physiologists, psychologists, dieticians, coaches, athletes, sports journalists and sports administrators. The recent organisation of Indian Association of Sports Medicine is to be welcomed in this context. The All India Council of Sports has done well in recognising IASM as the scientific body dealing with sports medicine.

PLANNING, PROGRAMMING AND BUDGETING SYSTEM FOR HIGHER EDUCATION

C. B. PADMANABHAN

Higher education in India has developed at a fairly rapid pace and it now consists of 71 universities having a total of 1,33,703 students. Direct expenditure on universities in 1967-68 was Rs. 37,77,62,849 on higher education and every State Government is devoting considerable portion of their budgets to higher education. But the universities are not in a sound position. The deficits in their budgets have frequently come up for comments. The colleges also are in an equally difficult situation. It therefore becomes necessary to think of raising more resources for higher education and also make more efficient use of the existing resources.

The scarcity of resources for higher education is not limited to developing countries like India. Even a developed country like U.S.A. has been passing through financial crisis in higher education and a committee on higher education has suggested measures for making more effective use of the available resources. Before the setting of financial crisis in higher education, the department of defence in U.S. has been practising a new kind of budgeting which will ensure among other things an efficient use of the available resources. Encouraged by the success at the defence department, the new form of budgeting was extended to other departments in 1965. At present apart from other departments, in education about 30% of the colleges and universities are using the new form of budgeting called Planning, Programming and Budgeting Systems (PPBS). It is worthwhile to consider the suitability of this new system in the current Indian setting.

What is PPBS?

It is a management technique. It adopts a systems approach to the Planning, Programming and Budgeting System. A system approach is again one which has been advocated and applied by modern managers for planning the work of any organisation in industry and it is claimed that it can be extended to universities, colleges and schools. Essentially it begins by defining as clearly and precisely as possible the objectives to be sought. It then proceeds to identify the different ways in which these objectives might be attained. It weighs the relative advantages and disadvantages of each of the ways so as to select the most effective, feasible and economical one taking into account the available inputs in the form of manpower, materials etc. It then adopts the process—the method, technologists and organisations which together produce the desired outputs. The outputs are the results actually achieved.

The University of Sussex has adopted such an approach to its activities. Every year the organisation of the university is discussed with the participation of all concerned in a structured form and that structure of organisation will continue only for one year. The definition of the systems approach shows that it can be adopted for looking at the university as a whole (system) or any departmental activity within it (sub-system).

Planning

In one sense planning has been going on in some way or the other. Planning is defined by Mr. Y. Dror "as the process of preparing a set of decisions for action in the future directed at achieving goals by optional means." Under PPBS, a system approach will be adopted for planning. Such a process of planning has naturally a long-term horizon and it will go into long term considerations relating to a university. Again to quote

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the practice of University of Sussex, it calls it strategic planning. Compared to a plan, a programme has a shorter focus of time. When the plan is converted into an operational one (as the Sussex University calls it) it is called a programme. The budget is the annual plan expressed in financial terms and measured in suitable units of measurement. Though we have made frequent reference to Sussex Universities, 30% of the educational institutions in U.S. and number of institutions in U.K. have already switched over to this approach and to this process of budgeting. It has to be pointed out that this involves not merely a change in the format of the budget but a change in the approach. In U.K. eight universities were recently brought together to set up teams and work on this new kind of management device by organisation for economic cooperation and development.

Shortcomings of the existing budgets

The budget, as they are now prepared by universities and colleges are called line item budgets where the expenditure is classified on the basis of the objects on which they are incurred like e.g. the pay of teachers and ministerial staff etc. For the purpose of teaching which is one of the major functions of a university expenditure has to be incurred on the pay of teachers, the equipment needed like the blackboard, chalk pieces etc. in the classroom. To identify the items of expenditure incurred on teaching one has to wade through different parts of a budget. Secondly the expenditure is classified into plan and non-plan or developmental and non-developmental. The developmental expenditure of one plan automatically becomes the non-plan expenditure of the succeeding plan. Thirdly expenditure is incurred on various programmes and it is not easy to identify and allocate all items of expenditure relating to a single programme. Consequently cost per student is difficult to calculate and hence not taken into account in watching the progress of expenditure.

In contrast, the PPBS seeks to think in terms of all expenditure needed for a given programme of a scheme. Even the preparation of a scheme or programme will be done on the basis of system approach within every programme like e.g., teaching, there will be sub-programme elements like teaching of Economics or Sociology. Even before a programme is recommended for inclusion in a budget alternatives will have to be thought of and on the basis of expected cost and benefits arising out of alternative methods of achieving the objective, they have to be included in the budget. **It is at the stage of consideration of alternatives for achieving a given objective that the greatest potentiality exists for improving decision making in the field of budgeting for higher education.** In order to get the best results consideration should be given to the careful preparation of programme drawing on the available expertise freely and more use will have to be made of data relating to the unit cost and measurement of work load of all categories of persons.

Relevance of the PPBS to Indian situation

There is no inhibiting factor in Indian situation to make PPBS in effective. It will however be necessary to adopt a new format of the budget for our universities.

Pre-requisites

There are same pre-requisites needed for its adoption in India. In fact even in developed countries though PPBS has been introduced since 1965 there are persons who feel that a lot more research is needed before a success can be made of PPBS in universities, colleges and schools. These arguments are applicable in India as well. For example that is the difference in learning outcome arising out of different teacher pupil ratio. Under PPBS a number of ratios like the teacher pupil ratio, teacher classroom ratio, have to be used for projecting the future resource requirement and also for working out the alternative approaches for realising a given objective. In any case enrolment projections for a long time in the future are essential. Evidentally these cannot be merely projections on the basis of past trends. Critical factors influencing the choice of courses of studies by parents and their children will have to be taken into account. Models will be very helpful for this purpose and computers also are essential.

We can use the following as a simulation model for preparing the budget of a university in a year (in fact this model has been successfully used by the University of Copenhagen):—

1. Prepare a student flow model which will give for each year in the last say 10 years, the distribution of students among the faculties, levels of study and number of drop-outs and graduates. With the help of this model co-efficients can be worked out for graduation rate and drop out rate.

2. Generally the sizes of classes and number of hours per class can be determined in advance. On the basis of this and on the basis of the distribution of the student population calculated in student flow model work out the need for teaching. At each level we calculate the number of classes and by multiplying this number with the number of hours per class per week we get an estimate of the total need for teaching.

3. The teaching capacity of the university depends on the number of teachers and their distribution among the faculties. On the basis of the student teacher ratio, we can calculate the number of teachers. On the same basis we can also calculate the number of teachers. On the same basis we can also calculate the number of administrators and technical assistance needed.

4. When the number of teachers, administrators, technical assistance and others are calculated and their salaries are also known it is possible to calculate the budget.

THE UNIVERSITY AND LIFELONG EDUCATION

KAMALINI H. BHANSALI

The idea that education ends with the securing of a degree is untenable in these days of expanding knowledge and widening horizons of learning. Today it is not feasible to confine educational activity within the four walls of educational institutions, nor it is advisable for universities to restrict their responsibility merely to their formally registered students. A university has to go out and extend its services to the community. In this sense the programme of Continuing Education is a vital additional function of all seats of higher learning. It envisages to cover education of all adults, vocational and non-vocational training as also liberal and non-liberal courses.

Though in different countries continuing education started with different purposes, there has been one common goal, namely, to take the university to the community. It has been realised that if the universities do not have contacts at the gross-root level, they will not function as the nerve-centres of society and will continue to remain ivory towers. It is undoubtedly true that there are several agencies which can contribute considerably to the spread of the programme of continuing education. However, universities have an important role to play in this direction and hence all facilities for this activity should be provided. Adults need to have not merely information but an analytical approach to information. A university with its various facilities can do this job more adequately and efficiently. Recoginsing the new dimension of the function of universities, the SNDT Women's University also took up the programme of continuing eduction with special emphasis on the needs of women.

Continuing Education at the Women's University

The SNDT Women's University has been working in the cause of women's education for more than 50 years to meet the needs of women in different directions. The university has always strived to spread its facilities to as large number as possible, through permitting private studies, teaching through regional languages and other means, right from its inception. Continuing Education is one more way to reach out to larger sections of women. An advisory committee has been appointed to prepare a scheme for establishing a Centre for Continuing Education for Life Long Learning.

The programme for the establishment of such a centre was finalised after consulting representatives of selected women's organisations and associations in the city.

The representatives while welcoming the new programme of the university felt that it should not only be geared to the needs of woman as a wife and mother, but also as worker and citizen.

In order to comply with the suggestions, it was decided that the objectives to be drawn should be in relation to this need and hence they were laid down primarily with a view to 'widen horizons' through extension lectures, group discussions, seminars, study circles, short courses and similar programmes. The second aim was to give short-term diploma courses or certificate or inservice or orientation programmes to meet the needs of professional groups. The third aim was to help those who had left studies to pick up the threads once more to join the main stream of education. The last aim was to conduct research in related fields.

ACTIVITIES

Extension Lectures

Keeping this role of the university in view the department has so far organised a number of Extension Lecture Series as under in three languages, namely, English, Gujarati and Marathi, which are also the media of instruction at the university.

S. No.	Theme	Medium	No. of Sessions	Duration
1.	As your child grows up	English	6	15 days
2. A	Helping the adolescent into the adult world	English	5	7 days
2. B	,,	English	4	6 days
3.	Drug addiction	English	3	5 days
4. A	How to help the adolescents	Gujarati	4	8 days
4 B	,,	Gujarati	4	8 days
5.	Issues faced by modern women	Gujarati	3	7 days
6.	Some aspects of family life	Gujarati	5	10 days
7.	Some ,, ,,	Marathi	5	8 days
8.	Understanding the adolescents	Marathi	5	13 days
9.	Understanding yourself and others	English	8	14 days
10.	Women in 40s	English	4	5 days
11.	We and the world of our grown up children	English	3	3 days

All the programmes had a great impact on society. As will be noted from the selection themes, the main concern and anxiety of mothers today is to understand the child in the different phases of its growth. Though awareness of the behavioural trends of children at different stages helps parents to

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understand and assist their children in a more constructive way in a rapidly changing society. The second important area of keen interest and concern was related to different types of relationships within the family, as the understanding of these above contributed to improved family living and in maintaining family equilibrium. Besides these two areas of interest, other areas of interest which can be listed, related to educational problems, sex-education, status of women, appreciation courses and the like. Specific themes to meet the immediate needs concerned, topics like drug addiction, women in forties and so on.

Analysis of educational level of participants

Educational Qualifications	Extension Lecture Series Nos.														
	No. 1	No 2-A	No. 2-B	No. 3	No. 4-A	No. 4-B	No. 5	No 6	No. 7	No. 8	No. 9	No. 10	No. 11	Total	%
Upto S.S.C.	34	22	25	4	87	45	65	74	18	20	20	24	14	452	22·11
Under Graduates	24	13	21	36	23	29	30	38	14	74	17	28	20	367	17·95
Graduates	57	46	34	62	39	10	24	24	12	49	52	51	54	514	25·14
Post Graduates	25	33	32	42	38	4	19	12	—	18	31	37	36	327	16·00
Diploma Holders	22	7	12	3	12	20	24	27	3	24	10	14	16	194	9·50
No response	19	8	5	18	47	14	28	12	3	10	5	11	10	190	9·30
Total	181	129	129	165	246	122	190	187	50	195	135	165	150	2044	100·00

Analysis of activity status of participants

Profession	Extension Lecture Series Nos.														
	No. 1	No. 2-A	No. 2-B	No. 3	No. 4-A	No. 4-B	No. 5	No. 6	No. 7	No. 8	No. 9	No. 10	No. 11	Total	%
Students	6	1	1	21	6	22	—	11	—	—	5	2	27	102	4·99
Working	70	47	68	72	49	28	45	39	9	49	60	50	56	642	31·41
Housewives	88	71	45	56	120	32	120	103	22	117	47	88	46	955	46·72
Retired	—	1	1	7	—	8	—	4	2	10	2	3	8	46	2·25
No response	17	9	14	9	71	32	25	30	17	19	21	22	13	299	14·63
Total	181	129	129	165	246	122	190	187	50	195	135	165	150	2044	100·00

The participants—A clientele analysis

It would be interesting to note the trend of the professional level and educational level of the participants who attended the above series.

The majority of the participants are educated are from the category of housewives. This is a happy sign as it reveals the eagerness and concern on the part of women to get enlightened on subjects relating to children and the family, so as to make their relationship and understanding better with others.

Short-term course

A short-term course of six weeks duration on Family Living was organised. The primary purpose of this course was to cover the various facets of family living, which would be helpful in strengthening the positive values of family living and healthy personality development. Healthy family life involves social, psychological, health and legal aspects. Hence, all these were discussed. Greater stress was placed on the practical side of the problem to develop a sound philosophy of family living geared to personal and social aspiration of the individual to make the family a stable social unit in Indian society.

Professional programmes

The institutions of the university organised professional certificates and short-courses for faculty members, school teachers and librarians. These also met with an encouraging response.

The continuing education programme at the university, whether in the form of extension lectures or professional or short-term courses indicated certain salient features which helped the organisers evaluate the programme. *Firstly, the involvement* by experts, not only substantially helped to sustain the interest of the participants, but also provided them with deeper scientific understanding. The readiness with which the experts agreed to associate themselves with the programme showed their deep commitment to the community and society at large.

The scope of each of the series and course and the framework of the short-term course were planned by committees of experts from the different faculties of the university and an inter-disciplinary approach, right from the planning to the implementation stage, requires to be underscored.

This being a new experience for many participants, folders containing detailed programmes, diaries for jotting down points and taking notes, a glossary of technical words, a specially prepared bibliography on the relative topics, and similar material were distributed during each series. These prepared handouts were greatly appreciated by the participants and were of great use to them.

Films, demonstrations and exhibitions, wherever possible, were arranged to give a practical orientation to the programme.

A list of the community resources available in the city, such as child guidance clinics, vocational guidance centres, speech therapy clinics and family counselling agencies were prepared and circulated to the participants to acquaint them with the availability of professional help in the city.

The participants were given the facility of being temporary members of the University Library and for each series selected literature relating to the topic was set aside for their perusal.

Special hours were kept in all the series for questions and discussions. Cyclostyled material on some of the series and the short-term course were distributed to the participants. These summaries were extremely helpful as reference material for recapitulation and gave then a greater insight into topics discussed by the experts. It also helped the participants, who were mostly women, to discuss the points with their husbands or members of their family, thereby arousing the interest of a larger group and extending the programme to the homes.

Open sessions and smaller group discussions were organised in some series which enabled the participants to get a wider perspective of the subject by opening up channels of communication.

An effort was made to expose the group to different techniques like lecture and discussion, panel discussion, demonstration and discussion, lecture and films, case presentation, symposium, etc.

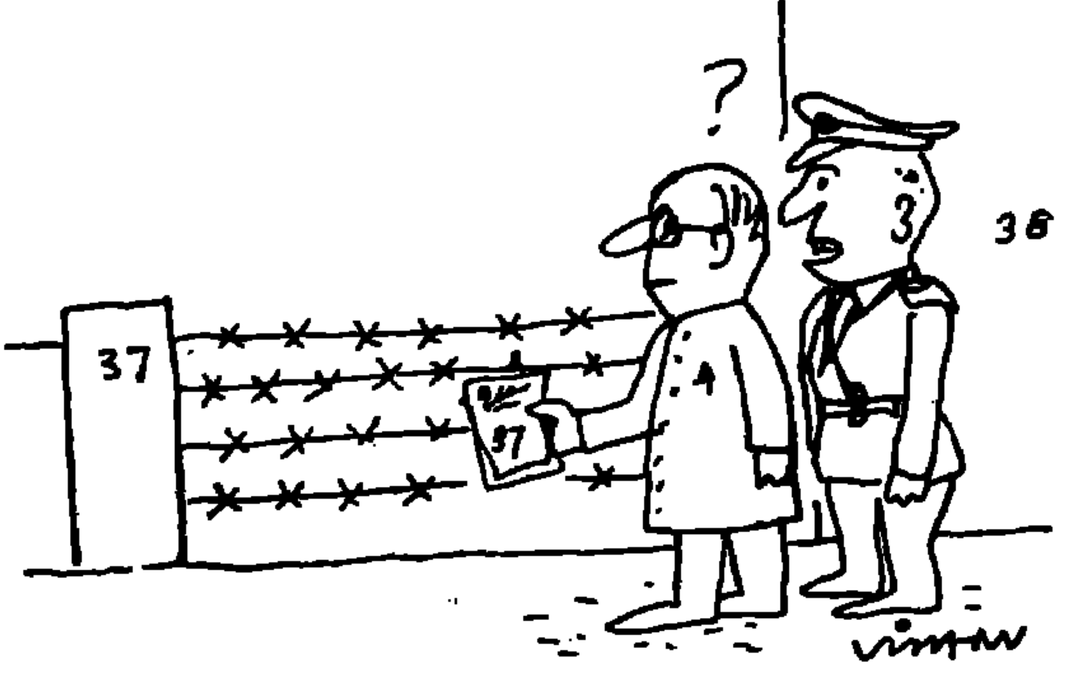
A get-together was arranged at the end of every series to give an opportunity to the participants to informally meet each other and the speaker. This also provided an opportunity to several of them for discussion with the speakers about their personal problems which they could not speak out openly.

Some of the extension lecture series were evaluated on the basis of the questionnaires, specifically prepared for the purpose and suggestions invited have served a very meaningful purpose in planning future programmes.

This university, besides its traditional functions of transmitting knowledge, imparting training and conducting research has involved itself with the community and has endeavoured to develop a programme of continuing education to begin with, through extension lecture series and short-term courses. Nearly 2,000 persons attended the course during the last 2 years and the average attendance was about 76%. The topics were primarily related to the areas of concern to women. The sessions were generally held at a time found to be most suitable to the housewives who were interested in making the most fruitful use of it. All the local colleges associated with the university were kept in constant touch with the programme of continuing education and the participation of the faculty members was encouraging. The programme started with extension lectures and it was felt that in the beginning it would be useful to give a broad and solid foundation to it through extension courses, on which gradually more specialised and specific courses could be built up.

It is gratifying to note that several departments of the university cooperated whole-heartedly to make the programme worthwhile and useful and considered the pragramme, undertaken under continuing education as their own and were actively interested and involved in it to the minutest detail. The spontaneous cooperation of the teaching faculty and the assistance of the university staff members extended to the programme, whenever necessary, also went a long way in organising the programme successfully.

THE GHOST COLLEGE



"A probe into this non-existent college which has received massive financial aid and university recognition would be ill—advised because we both hold degrees from it...."

The Mysore Universities Bill 1973

N. RAJAGOPALA RAO

University in india, ever since the times of founding of the provincial universities have been treated generously and even the alien government set a self-denying standard in matters of control and intervention. Excepting a few instances of attempted governmental interference, self-government of a university was well established by tradition and practice. But universities in post-independent India are subject to much stress and strain. They have not been able to fully re-establish themselves and function in a truly independent way. The reactions may be many—the political tensions, economic distress, social pressure etc. But the result is that the State Governments are charry about university autonomy and are attempting to restrict its operational freedom. The footnotes to this are the amendments to (1) Osmania (2) Venkateswara and (3) Andhra University Acts. The Mysore Universities Bill is only the latest and more comprehensive.

What are the reasons for the introducing of a common Bill. Why is it necessary? Who asked for the change? There has been no explanation so far by any responsible person. We may surmise from informal and semi-official leakages. That the three universities in the state are not functioning well and more, are financially wreckless. Also they have failed to discharge their obligations to Society. Because of their very non-evaluative nature, these are more accusations than well founded charges. Enough scope it present in each of University Acts, by way of general powers of the government to enquire into the conduct of universities. The university authorities are not charge sheeted for their acts of omission and commission except oblique references made occasionally what are the objective tests that could be employed?

(*i*) The student population (*ii*) Explanation of teaching departments (iii) Publication (iv) Research papers (v) Promotion of Kannada Language (vi) Liaison activities with industry and trade etc. On any of these counts, the achievements of M.K. and B are high both quantitatively and qualitatively.

II

Like any other live institution, a university is founded in response to certain regional socio-cultural forces. Each has its historical setting which has given its present momentum and direction. In way very university has its destiny. It is in this framework of regional and historical factors that a university finds its natural expression and freedom, and praise. The University of Mysore founded nearly sixty years ago has the unique distinction of having a succession of eminent man in the field of letters, science and administration as its Vice-Chancellors. Even so its produguous output in Kannada.

Similarly the Karnatak University was founded as a result of the decision of erstwhile Bombay government to found regional Universities in Karnatak, Maharashtra and Gujarat. Its democratic set-up has been so native to it that in these nearly 23 years of its founding its performance is rated high by competent educationists. Similarly the metropolitan University of Bangalore had a survive all the jerks and jealousies of a compact urban community, before it became mature and found its genius. Thanks to its present Vice-Chancellor.

Suppressing the genius of the Universities in the State, why the common Act for all in as understandable as it is perplexing. We should note that the bill is not an amendment to the existing act but is a new replacement. Death sentences are passed on the existing universities. All the universities under the Bill will be new. Universities are to build all from the beginning.

III

The enumeration of the senate, academic council, the syndicate, the vice-chancellor etc., and the powers, composition and functions are a mere organisational confirmity and no serious thought has been given to them as it was not the intention of the framers to treat the several bodies more charitably. Even if it be said that the traditional set-up of university cannot meet the new challenges and involve itself completely in the new socio-ethical values of the country, then the structure and composition of the several functionaries therein are neither conceived meaningfully nor express the revolutionary forces. All the authorities of the university are stripped of their democratic and academic character and the officials of "Vidhan Soudha" are packed into them. It is common knowledge that the administrative class under any type of government behaves as an estate and a superior caste. It is to these high priests that we are handing over the temples of learning. Nothing more is required to discourage experimentation, variety, freedom of expression and thought and fundamental research and encourages conformity, routine, red tape and art of cultivation of licking the high up echelons. Bureaucracy is

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This Paper was presented at Mysore Seminar on Universities Bill firmly established in all the university bodies and also in the teaching and administrative departments. Because all the university employees are deemed to be "servants of Government". Truly servants of Government but masters of the people. Another implication of having the same officials on the university bodies of all the universities in the State has not been sufficiently elucidated. If the same departmental chief is a member of the Senate or Academic Council or Syndicate of 4 or 5 universities how much the work of the department suffers. Rarely one can find them in headquarters. The departmental chief becomes a touring senator or a syndic. He may outrival his departmental minister in this regard. Miracles are not performed by administrators and they add to the cost of the government.

No man with honour and dignity and academic excellence, can accept the office of Vice-Chancellor, after going through the proposed bill. In the language of the Secretariat, he is a section head, subservient to the party bosses in the Government.

Much criticism is focussed on the Office of Pro-Chancellor and his vast powers. The smallest man but with the largest shadow. Nowhere is there an instance of so much of powers over so many universities fused in one single person, who is also the Minister of Education in the Government. What an amount of patronage he has to his party men! No wonder if the Chief Minister hereafter keeps education portfolio to himself. The university becomes replica of the party in power and an academic version of its notions of justice, liberty, equality and free knowledge.

The Chancellor is a appellate authority and has power of intervention and can use his individual discretion is now reduced to an utter formality. He no more plays the role of the judge in matter of university mannagement. When shall we approach? The politically jaundiced look of Pro-Chancellor, the ineffective Vice-Chancellor who may just say go to Bangalore please.

IV

(1) A common Act all the universities with a similarity of composition and structure and powers is ill-conceived. If that be the case what is the justification for different universities? One State University with its headquarters in the Educational Secretariat can manage the postgraduate establishment in Mysore, Mangalore, Dharwar etc.! It is time saving, economical and more centralised.

(2) The university hereafter ceases to be an expression of freedom and democrat and becomes a conformist.

(3) The professional teacher is reduced to non-entity in the conduct of the university and becomes a servant of Government.

(4) The nativity in the growth of Universities is tampered with and mechanical element is introduced.

(5) The sense of legitimate pride of each university and its alumini responsible for comradeship and fellowship is reduced to dust.

V

The Senate and the Academic Council must have full representative of Professors and Postgraduate Departments, Principals of Degree Colleges and representatives of teachers and the Student Community in addition to Chambers of Commerce, Industry and Agriculture, Literary Bodies etc. The Syndicate, the Cabinet of the University, much have a preponderatly and academic majority as the University Commission long back suggested.

The Vice-Chancellor must continue to be the Head of the University, he is at present providing academic leadership and vision to the University. The mode of selection of Vice Chancellor in each of the university should continue to be different as at present. I would even present a very unorthodox procedure, at least for one of the universities, namely, the Vice-Chancellor may be elected from a panel prepared by the Syndicate by all the university teachers. Alternatively, the Seniormost Professor of the University must be normally be made the Vice-Chancellor clauses relating to Pro-Chancellor must be removed totally, powers of supervision, inspection etc., must be vested with the Chancellor and exercisable in his individual discretion and not at the behest of the executive.

The constitution of MSU particularly in the teaching cadres takes away the right of appointment from the university to public service commission and hence national mobility of teachers, short term assignments, visiting lecturerships etc. which is all part of university administration comes to an end. The net result is no original research can be conceived nor executed to the finish. The teachers union, the professors are opposed to on US. In the administrative cadres, limited transfers may be considered. Expedient, more so in the financial wing.

The principle of student representative must be considered to be extended on sports committees, extension studies committees etc. In fact a small council of students may be thought out with the Vice-Chancellor as the President. The faculty constitution is redundant if the Board of Studies are active and hence it may be dispensed with.

University Vs. Government

This is a wrong posture. It shows the amount of mistrust prevailing in some quarters. University autonomy nowhere implies severance of State control or even right of Government to intervene in particular situations. But the claim that because the Government plays large sum of money to maintenance of university and therefore is entitled to the management of university is not logically well-founded.

The economic administration of a department or corporation is fundamentally different from academic administration, where formal rules and procedures are at a discount and informal decisions and discussions are mere influencing. The present arrogation of powers to the Government and that it is the society is fraught with pernicious consequences and foreshadows the perillous days ahead for democratic freedom and expression.

A governmental support should not be made an occasion for subservience to it, which is bad ethics and certainly not good economic management. The instance of A. Mukherjee persuading the Senate of Calcutta University to refuse to accept State grants on its terms may be recalled with gratitude and reverence.

This is the greatest crisis in the history of the university which I have witnessed during a period of 34 years. The conditions proposed were described as badges of slavery.

A University coordinating agency

For the State with powers of stimulation, coordination and financial support and advise may be better suited to influence the universities in the State. The Government can indirectly control higher education than undertaking to do it itself.

Conclusion

All earlier attempts of State control of University in the country pale into insignificance when compared to Mysore Universities Bill 1973. It is all the more as unfortunate as it is humiliating that a State Legislature in the Silver Jubilee year of Independence should have ventured to legislate on the proposed lines in the Bill. I humbly submit that the universities are fully aware of the dynamics of change, its need and implications. Hence the issue between legislature and the university unless it is an indication of a wider change in political climate as prophesied by some and proposed by some others, is a false one. The legislative imperialism is cutting the roots of our constitutional and social federalism. To sum up:

(i) The existing structure of the Universities of Mysore, Karnatak and Bangalore be continued with minimal changes to give more representation to teachers and students

(ii) Periodic reports of their working be given to Government.

(iii) In matters of affiliation of colleges, the proposals of a committee presided over by the Director of Collegiate Education or the Secretary, Education over the Enquiry Committee must be binding both to Government and University.

An integrated society has to be built from the ideas and techniques and source of dedicated work discriminated from the university alone. It is a time consuming process and it shall not be confused with a total society. The Government is a Government of the present but a University is a Government of the future.

The Bill may be kept in abeyance till the UGC and the Minister of Education, Government of India and the public opinion is able to express its opinion. □

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HOW TO IMPROVE TEXTBOOKS FOR VOCATIONAL TRAINING

C. HANDSCHUH

Vocational training is still widely considered as a field of education meant for those unfit for higher studies. This negative criterion is supposed to help in selecting canditates and in planning curricula for vocational training. The only educational activity which really deserves the name seems to be Academic Education. Therefore other educational activities try to retain as many features of academic programmes as possible.

Textbooks for university courses should not be the model for textbooks meant for vocational training. This becomes quite obvious, once the fact is recognised that there are values in vocational education independent of those for academic education. Besides the training in a particular set of skills, vocational education can be given an insight into the reasons for certain procedures and techniques, discuss alternatives and try to develop the ability of finding solutions independently. All knowledge imparted can be and should be related to a particular work situation; there is no need to teach 'pure' or abstract science to vocational trainees.

Ways of Presentation

An important change in the presentation of information in textbooks for vocational training was initiated about 20 years ago. The most striking feature of this new kind of textbooks was the important role given to illustrations. A traditional book for motor mechanics would have given an exhaustive description of all the parts of a motor car, and just to make sure that there was no misunderstanding about the difference between a crankshaft and a cramshaft, a photo of line drawing of these parts would have been added. In the new type of book, the author presented information about the crankshaft, mainly with a picture, giving only supplemetary information through the text. This meant that the illustration had the same importance, as a medium of presenting information, as the text. The development had become possible through a considerable advancement in printing technology.

Once the author has recognised that he has a choice in the medium of presentation, he has to decide on which information should preferably be given in the form of written text and which by graphical means. Ofcourse, he may be restricted by certain limits set for the cost of production or he may not find an artist who can give him the kind of picture he would like to have. But the fact should be accepted that a graphical presentation can be more suited to convey certain feature or concepts.

The first demand on the written material in a book for vocational education is simple language, using colloquial terms or the simplest technical terms available. The structure of a particular chapter should be independent of the structure of academic texts. There is no need to begin the chapter with definitions or terms of references. You can very well write about a motor car without giving a definition. In fact the matter gets rather complicated if you try to define a motor care. Normally the concept of a technical object is not better clarified because you have succeeded in finding the correct definition.

As a rule, in these kinds of textbooks, information based on the experience of the reader should be presented first and generalisations should follow. The emphasis does not have to be a logically or scientifically correct development of ideas, but should be on a description which develops unknown facts or concepts from experience or previous knowledge.

Nature of Illustrations

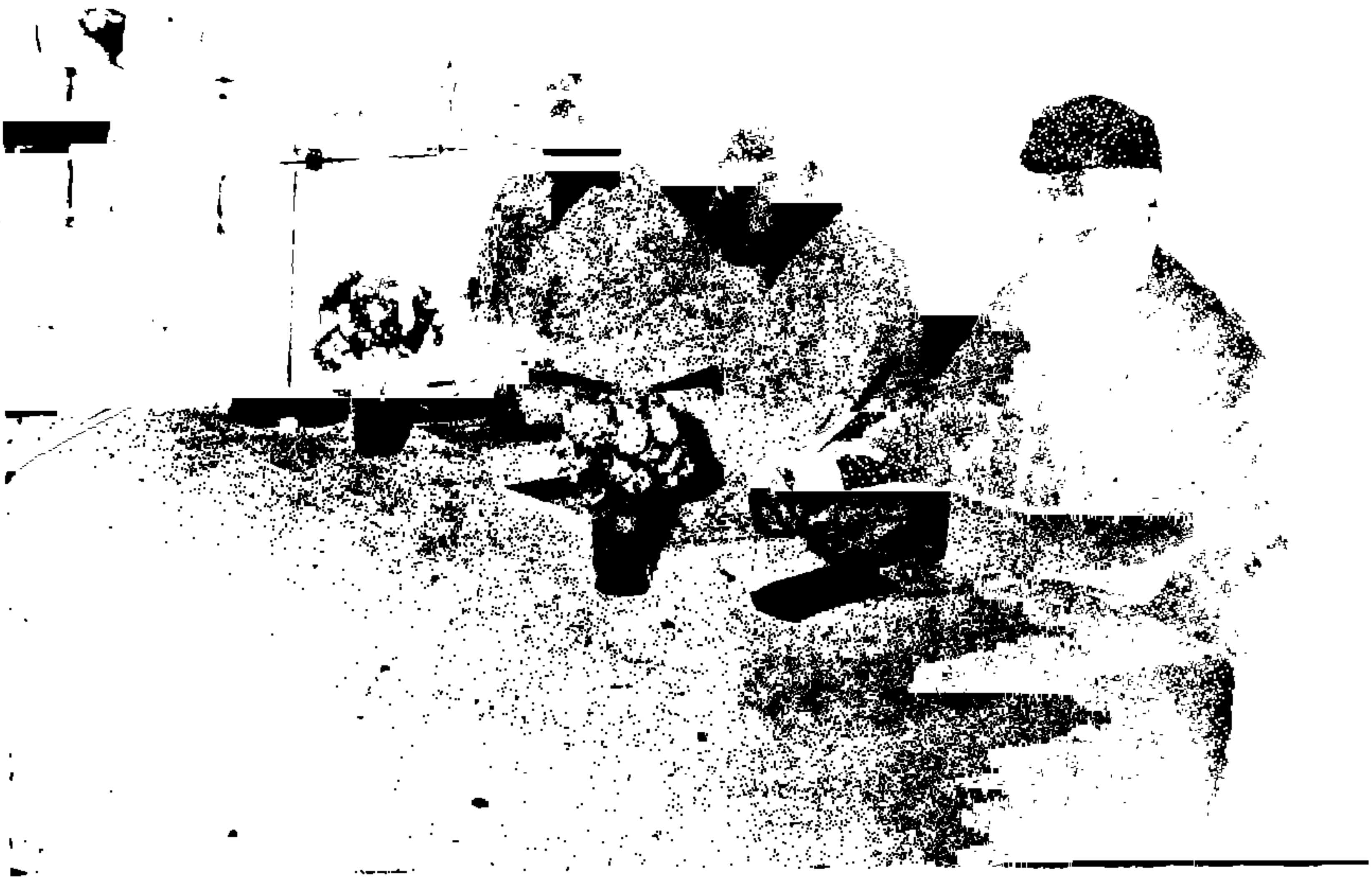
The illustration can become an independent source of information, conveying its message more effectively than the text. In order to achieve this the picture should be presented according to the following principles: (1) Only one item or concept should normally be illustrated in a picture. It may be desirable to present in a wheel assembly of a motor car the bearing and the brake, but then separate pictures for both items should be given in addition. (2) Only essential features of object should be shown with a high degree of abstraction. In most cases a drawing would be preferred to a photograph. (3) The picture should not be too small. (4) Reference numbers of letters should be preferred to the use of words within the illustration. (5) The use of colour improves the clarity of an illustration considerably.

Materials for vocational training recently developed in the Netherlands consist mainly of pictorial presentations and limits the text to nomenclature and a few explanations. These books can be bought without any text and the student writes the terms and explanations into his copy instead of taking notes in class. Where vocational courses are taught in the vernacular, this would be a promising answer to the problem of providing suitable textbooks in regional languages.

(Courtesy Book Talk)

The author is the Project Director Foreman Training at St. Joseph's Technical Institute. Poona.

Data Bank For Agricultural Statistics



Prof. Sher Singh, Union Minister of state for Agriculture with Dr. M.N. Das, Director of Institute of Agricultural Research Statistics at the annual day.

The Institute of Agricultural Research Statistics, New Delhi, has been doing pioneering research work in the Agricultural Statistics since 1964. The Institute offers specialised training in agricultural and animal husbandry statistics both at the inservice level and the professional level. It also conducts training courses for research workers.

Prof. Sher Singh, Union Minister of State for Agriculture, was the chief guest at the annual day of the Institute. In his inaugural address, he emphasised the need for accurate agricultural statistics in the planning of agricultural plans. He commended the contribution of the institute in conducting research in the techniques of collection of data and interpretation of agricultural statistics. He was glad to know that the institute is the only organisation in the country and possibly in the whole of Asia where facilities for training in agricultural statistics exist. In India, there is a wide gap in the requirement of agricultural statisticians and their availability. In the context of rapid development in the field of agricultural research, it has become very necessary to strengthen such training activities.

Agriculture is mainly an observational science. It is therefore essential that the observations are collected through agricultural experimentation according to sound statistical principles so that they can be interpreted in a valid way. Many of our projects are not receiving adequate statistical servicing. One of the reasons may be the inadequacy of trained statisticians. It is, therefore, necessary to strengthen such training activities and encourage the trainees to take up their activities in all parts of the country, particularly in the context of area research approach in agriculture. This would help not only in sound planning of the various projects but also to get the data analysed without delay.

It would also be necessary to arrange regular adhoc and refresher training courses running for short periods like summer institutes and short—term courses to suit special groups of research workers in collaboration with the other agricultural and animal husbandry institutes at frequent intervals.

In addition to the classroom lectures, it is very much necessary that the students are associated with

(Continued on page 15)

SEMINAR ON MYSORE UNIVERSITIES BILL

Shri Devraj Urs, Chief Minister of Mysore addressing the Seminar

A seminar on Mysore Universities Bill was organised by the University of Mysore on July 29-30, 1973. The two-day session was attended by Dr. K.L. Shrimali, Vice-Chanellor of Banaras Hindu University, Shri H. Narasimhaiah, Vice-Chancellor of Bangalore University, Education Commissioner of Mysore State, Members of the Legislature, Representatives of the Karnatak University and the Indian Institute of Sciences, Deans of Colleges and Members of the University Senates.

Inauguarating the seminar, Mr. A.R. Badrinarayan, Mysore Education Minister, said that the Government had no intention to encroach on the university autonomy. The main objective in bringing the Universities Bill was to have a uniform Act for all the three universities in the State. In what form it would satisfy the interests of all concerned was the present problem. But there was no attempt to encroach on the realms of the universities. The present bill was merely a draft skeleton, which had to be filled with flesh and blood, on the basis of dialogue, discussions and suggestions. The Minister said that there have been criticisms about the administration of the universities on the floor of the legislature by the elected representative of the people and the government was answerable to the happenings in the universities. To this background, it became necessary to examine the question of university autonomy. The question was to what extent such autonomy should be given. The Miniser said that there should be no room for politicking in the universities, as they were the great centres of learning. But universities have failed to imbibe the ideals of giving the best to students. The Minister further said that the Government had sufficient support in the house and there would be no problem in adopting the bill in the present form but he personally felt that it should be placed before the people for their acceptance and for that he welcomed the holding of the seminar as it provided an opportunity to have constructive criticisms.

Prof. Javare Gowda, the Vice-Chancellor of Mysore University, who presided over the seminar, observed that the present legislation undermined the concept of autonomy of the universities at its most basic level. He pleaded that the State Government should exercise their power with restraint and universities be allowed to function with dignity, self-respect and intellectual freedom. He said that the bill was a retrograde measure as it took away the flexibility and autonomy of the universities. He said it was saddening that the clock was sought to be put back at a time when universities all over the country were becoming more progressive and modern in outlook. The bill would also conflict with the recommendations of the Kothari and Gajendragadkar Committees.

Prof. Gowda said that he was not pleading that the State should have no control over the universities. Neither he would like the present visitorial powers of the State to go. As a matter of fact, it was possible and desirable to ensure state control over the universities but such control should not lead to a strangulation of freedom of the universities. An attempt should also be made within the universities to lesson the degree of hierarchy and status consciousness. It was really ironical that when universities were looking inwards into themselves and were attempting to re-orient their internal structure, they should be faced with a threat that the autonomy might become a thing of the past. The universities had no intention of committing academic harakari. They did not demand independence from the state. But there should not be a donor-recipient relationship between the government and the universities.

Prof. Gowda also criticised the bill for seeking to process the academic programmes through the Pro-

Chancellor. He said this would lead people flocking to education department and approach the second division clerks for remedies. He appealed to the Govt. not to distrust the authorities in the universities feeling that they repose confidence in officials.

The Vice-Chancellor should have more powers to meet any emergency these days. If the Vice-Chancellor is striped of his powers, as has been done in the bill, the administration of the university would become impossible in these days of unrest and indiscipline.

Dr. K. L. Shrimali, former Vice-Chancellor of Mysore University also criticised the provision for having a common bill for the three universities in the state. He said that each university was having its own tradition, identity and history. He was also against giving over-riding powers to the Pro-Chancellor . Dr. Shrimali said that if the government wanted to put right the affairs of the universities, it could have appointed a commission before bringing in this drastic legislation. In his opinion, it was also wrong to make professors as government servants, and it was probably for the first time in the history of Indian education that such a drastic step was thought of.

The valedictory address was given by the Chief Minister, Mr. Dev Raj Urs. He said today most of the representatives of the people both inside and outside the legislature were asking for a uniform Act in respect of three universities in the state. The cry was there for a number of years. The State Universities had different standards and set up. Even the fee structures differed remarkably and it led to all sorts of problems for the government. With regard to the controversial aspect of the university autonomy, Mr. Urs said that the autonomy did not suppose creation of a state within a state. Thus the relationship between the state, university and legislature had been clearly defined. Keeping this in view, they had to conceive autonomy of the university which should no more make a state within a state but to be in overall subordination in certain spheres. He did not say that the legislature had knowledge of all universities activities. But in relation to matters of finance, proper utilisation of money and educational policies, perhaps the legislature will have to have powers to intervene.

Referring to the visitorial powers, he said that the joint select committee will be considering the matter for necessary modifications. But the Chief Minister was against the continuation of three sets of colleges—private university and government. He was even prepared to hand over all government colleges to the universities to end this anomaly.

Giving the background for introducing the Universities Bill, Mr. Urs said that sometimes ago Mr. Dharam Vir, former Governor of Mysore, took the stand that as the Chancellor of the university, he was not bound by the advice of the council of Ministers and he did act on this principle. This embarased the position of the government to certain extent. If the Chancellor were to take such a stand and refuse to comply with the advice of the Minister, then there would be difficulty.

Mr. Urs further said where was the question of accountability of universities to the government which was the master and which provided funds. Perhaps this was the background in which it was sought to give more powers to the Pro-Chancellor in the bill. The concept of having the Pro-Chancellor was already there in the Mysore Universities Act and perhaps it was not found in other universities. If it was not found possible to give so much powers to the Pro-Chancellor, it can be reconsidered. But the government was interested in the overall control of the supervision and directorial powers. If this is achieved, it is not necessary to stick to the idea of giving more powers to the Pro-Chancellor.

He further said that if the bill was not found rational and logical and was not in the best interests of free, independent and autonomous characters of the universities and if it was likely to erode and affect the effectiveness of the universities, it was not advisable further to force it on the universities.

DATA BANK

(Continued from page 13)

actual conduct of agricultural experiments and collection of data. Students' research can also be collaborative where the students of this institute can collaborate with the students in other disciplines of agriculture and animal husbandry so that they can get a chance to have a close look into the problems in agriculture and other allied subjects on the one hand and on the other hand can help other students by taking care of the designs for experiments and the analysis of data.

In the context of fast expanding agricultural research a time has come when the computer service for agricultural research is essential. The IARS is having a computer since 1965 but it is not powerful enough to meet the increasing requirements of agricultural research. There is an urgent need for having a more powerful computer.

The statistical awareness has recently increased greatly among agricultural scientists and others. Considerable amounts of statistical data are being collected. Much of these data is in the form of ancillary information collected alongwith the main series of data. It is necessary that these data are stored in a central place where they can be made available to various users by building what is called a Data Bank. Effective planning in our country particularly in agriculture is being handicapped due to lack of adequate statistical data. At the same time, lots of data remain unutilised because of lack of easy accessibility and absence of facilities for their interpretation. The creation of Data Bank will solve some of these problems.

FISHERIES UNIVERSITY

Dr. N.K. Panikkar, Director, National Institute of Oceanography, delivered the Chandra Kala Hora Memorial Lecture of the Indian National Science Academy. During the course of his lecture, he said that our universities and higher centres of learning are reluctant to accept new subjects within their fold, particularly those subjects which are reckoned as applied off-shoots of the major disciplines. Fortunately this attitude is rapidly changing and these few years have witnessed the emergence of several agricultural universities because it has been realised that a most important subject like agriculture in all its aspects could not receive adequate attention in the hands of the traditional universities. The most important industry in India is Agriculture. We have accepted this change as necessary. Fisheries is likewise dealt within a perfunctory manner in the new universities which have taken interest in this subject. We have found in many places a complete ignorance of fisheries research because it is often confused with researches on fish, their structure, development, physiology, behaviour and many details which fall with the purview of zoological studies.

In the new concept of functions ascribed to agricultural universities, it is often envisaged that apart from agriculture, animal husbandry, and dairying should be legitimately handled by the agricultural universities, as one compact approach towards higher education, research, development and extension in the broadest sense in all aspects of land use. Some of the agricultural universities have thought it fit to include fisheries also within their ambit. If all the facilities required are provided together with qualified teachers and equipment, there is probably no harm in such an approach but often what happens is that the subject gets relegated to a minor position. Recently we have seen the opening of fisheries departments in the traditional universities and in some of the agricultural universities. The really well equipped institutions to impart instruction in fisheries and which have been discharging this function with great credit like the Central Institute of Fisheries Education in Bombay, the Central Institute of Fisheries Cooperatives in Cochin and the Training Centre in Inland Fisheries at Barrackpore, are not receiving recognition as university centres.

Much confusion is now being created by the mushroom growth of fisheries departments proclaiming to give degrees without adequate provision for laboratories, equipment and good teachers. It is not realised that the question of organizing and developing a marine fishing industry as well as inland fish culture is a complex one in which the close intellectual association of biologists, chemists, technologists, engineers, and economists are involved and the subject is broad-based enough calling for development of fisheries universities. This has been successfully carried out in Japan and a few other countries. If at least we have one National Fisheries University it should be possible for all the institutions imparting instruction in this subject to be affiliated to this, for teaching at degree, post-graduate and research level. This is probably the best solution to the complex situation prevailing in our country if we are to keep our standards of teaching really high and attract candidates of high intellectual calibre.

In the same manner that agriculture has received a newer recognition through the emergence of agricultural universities, a big step forward would be achieved by the federation of the different centres of learning in fisheries and allied subjects into one connected system so that the status of teaching, research and higher learning in the subject will reach a high level of intellectual and industrial proficiency. It is hoped that in the years to come the subject of fisheries which has strong social objectives for food, employment, and increased national income will be fostered and consolidated at educational centres, bringing together physical, biological and social scientists, in the pursuit of knowledge relating to resources, development, conservation and utilization and the application of that knowledge for the good of the nation.

FIRST FARM POLYTECHNIC

The first agricultural polytechnic is proposed to be set up during the current financial year at Pondicherry. It will be administered by the Tamil Nadu Agricultural University as one of its constituent units. An expenditure of about Rs. 11 lakhs is to be incurred on its establishment. The I.C.A.R. is expected to share half of this expenditure and the remaining half will be borne by the Pondicherry Administration.

The polytechnic will provide in-service training to the extension staff of departments of Agriculture, Animal Husbandry and Fisheries. In addition, it will impart technical skills to selected farmers based on the principles of technical literacy but no diplomas would be awarded. The Planning Commission has already given its clearance for the proposal.

LABORATORY GUESTS

About a dozen young scientists and engineers are currently working at the National Physical Laboratory in New Delhi without any salary. They have come on their own volition and work at N.P.L. just for the love of science. The N.P L. calls them "guest workers". At various times a total of 72 guests workers, most of whom had an engineering or a Postgraduate diploma in science have worked with zeal and determination. But N.P.L. do not pay them. Most of the graduate scientists and engineers still desire to work primarily to improve their knowledge. Some come to learn special techniques and developments that would launch them as young entrepreneurs.

REORIENTATION OF UNIVERSITY EDUCATION

Mr. Gopalrao Ekbote, Chief Justice, Andhra Pradesh at the rostrum

The Chief Justice of Andhra Pradesh, Mr. Gopalrao Ekbote delivered the Sir Alladi Krishnaswami Aiyer Endowment Lectures of Andhra University. The first lecture was devoted to the Educational System in India and the second was on Legal Education.

Mr. Ekbote reviewed the history of Indian education since British time to the present day. He said that education, generally speaking, is the means to develop the personality of the individual to make him a good citizen. The present day education suffers from certain basic defects. It is isolated from life, it is narrow and one-sided, the problem of medium of education creates handicaps, the teaching method fails to develop initiative and independent thinking and, lastly, the number of students and the weight of examinations leaves little scope for contact between the teacher and the student. Added to them, the population explosion and the explosion in human expectations have thrown the whole system of education out of gear. There is no sense of purposefulness among the students. Expectations that the education is a means to jobs and social status have proved illusory.

Mr. Justice Ekbote emphasised the importance of work-oriented basic education at the primary level, and a vocation-oriented education of the multipurpose type at the secondary level. He regretted that, in spite of the directive principle in Article 45 of the Constitution and the various Primary Education Acts, primary education in the country had not made appreciable progress either in numbers or in quality. Similarly, he said, the recommendations of the Mudaliar Committee and the Kothari Commission had not been given the attention they deserved, and even if some of the recommendations had been implemented the heart of the reports had not been put into the reforms. To these factors he traced the evils of purposeless education and joblessness of countless number of people.

In the university education, he visualised the danger of gradual erosion of the autonomy of the institutions imparting instruction, particularly due to the great financial control by the State. The result, in his view, has been that these institutions, instead of serving as centres for original thinking and independent criticism, have tended to become a sort of nationalised industries. He perceives that this danger is not peculiar to India and remarked that almost all over the world university activities are being geared to secure power and prestige for the State. He called for preserving the autonomy of the educational institutions. He drew attention to the need to recruit as teachers persons who have a sense of devotion to the calling and the pursuit of scholarship. He wanted the curriculum of study to be so revised as to bring the student closer to life's problems and to inculcate in him a sense of respect for the cherished values of democracy and secure way of life.

In an equally brilliant survey of the system of legal education in India during the British period and since independence, Mr. Justice Ekbote prefaced his second lecture by paying tributes for the contribution made by the Andhra University to the progress of legal education over the past thirty years. He pointed out that rule of law is one of the pillars of our Constitution, that the condition of freedom is law and that law is to be conceived as the enforcement of objective rules based on justice, ascertained in advance, applied and interpreted by an independent judiciary and implemented by a representative and responsible government. Thus conceived, he said, law is a mighty weapon of socio-economic changes of a radical character needed for building up a society free from the ills of poverty, illiteracy and narrow secretarian prejudices. In this great task, he emphasised, law must join hands, as never before, with economics, political science, administration and indeed all social sciences. The purpose of law is not only to move with the changes in a dynamic society but also sometimes to move in advance of the social order, anticipating and influencing the desired changes. To this end the powerful instrument of law should be flexibly adopted, always remembering that a golden balance is to be struck between liberty and authority, between the interests of the individual and the needs of the society. While public men devoted a great deal of their energy towards social and economic changes, he pointed out, precious little had been done by them in the matter of influencing a reform of the legal system. Changes in the legal system, which are so imperative today, should get reflected in and should draw nourishment from the system of legal education obtaining in the country. Mr. Justice Ekbote regretted that this aspect received little attention in our country till very recently.

Tracing the origins of formal legal education in our country to the founding of a chair in Hindu Law at Banaras in 1842, he referred to the reports of successive committees and commissions, including those of the Radhakrishnan Commission 1948, the Bombay Legal Education Committee 1949, the All India Bar Committee 1953, the Rajasthan Legal Education Committee 1955, the Law Commission of India 1958, and the Gajendragadkar Committee 1964. He also made extensive references to the Ornorod Committee's Report of 1971 on legal education in England as well as the Seminars and studies made in USA currently by the Association of American Law Schools, the American Bar Association, the National Conference of Bar Examiners, the Carnegie Committee on Higher Education and the Ford Foundation. He emphasises the great role which the universities are expected to play in the imparting of sound legal education so that we may have the requisite number of competent men and women in the bar, on the bench, in the administration and in the law faculties. To achieve this, he pointed out, there is imperative need for selective admission of students, selecting law teachers of proven merit, radical improvement in the ratio of full-time faculty teachers and a structural reform of the present pyramidical set up of the law faculties by perhaps increasing the top positions in the faculty. Along with it, the system of instruction itself would require considerable revision by reducing the importance of lectures and introducing the question and answer tutorial, seminar, case-method, moot court and, in particular, he said that the publication of a 'Law review' should be encouraged. Inspite of all that is claimed to have been achieved, no changes of fundamental nature have been made till today. He concluded his lecture by stating that we today require superlative legal education much more than does England or America, and that 'If challenge determines response, the enormous challenge to our legal education and to our legal profession should produce a tremendous effort to improve legal education."

MEDICAL STUDENTS SYMPOSIUM

A symposium organised at the Seventh Asian Regional Medical Students Association held at New Delhi, emphasised the need for rural medical care. The present-day medical education is mostly city-based and does not cater to the needs of village population. The symposium urged a change in the medical curriculum to make medical education rural-oriented. Similarly, teaching in medical colleges continued to be more hospital-based rather than community-based. Clinical teaching in laboratory oriented and the medical graduates find it difficult to function with the limited tools and facilities available to them in semi—urban and rural areas. The symposium recommended that the students should be given more training in the peripheral areas instead of in big city hospitals. Regretting that medical graduates lacked training and experience in leadership and responsibility, the symposium suggested that a student should be put in charge of a few beds in the hospitals or responsibility to ensure proper health facilities in one or two villages.

Dr Trivedi, Director of the National Institute of Health, Administration and Education, New Delhi, summed up the discussion. He said that the problem of rural health could not be discussed in isolation. The emphasis should be on family planning, nutrition, sanitation and preventive measures as well.

GUJARAT UNIVERSITY'S RECORD

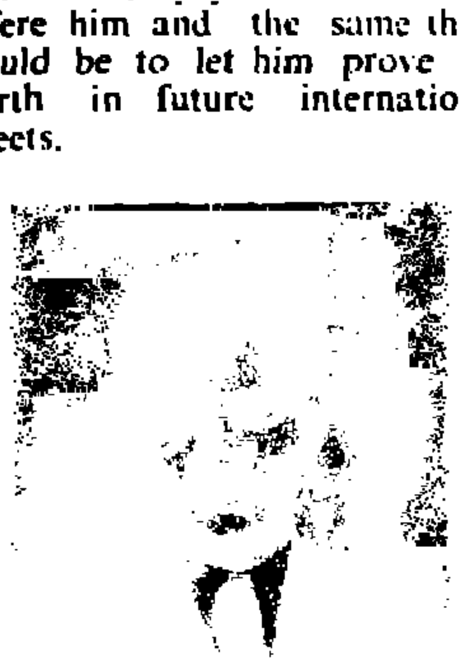
Both father and son would sit together as members of the Gujarat University Court. Dr. C. Naik, the famous cardiologist is a nominee of the Chancellor to the university court while his son, a student of electronics has been selected representative of undergraduate students.

LUCKY BRONZE AT UNIVERSIADE

Universities Wrestling camp in progress at NIS, Patiala

Mr. Samuel Banerjee writing under the caption "Sports Sallies" in the columns of Tribune has analysed India's performance at Universiade.

"The Universiade in Moscow has humbled India. We could salvage just one bronze medal from the heap of 115 titles at stake. The medal that came India's way was literally given to us on a platter. Kolhapur grappler S.L. Varute, who won it, fought only once in the 10-day games when he lost to an Iranian and also sustained an arm injury. With his arm in a sling he was forced to give a walk-over to his Russian rival in the next round. Despite being side-lined, he clinched the bronze medal for finishing third from a field of three competitors. He was indeed lucky and so were India. But was it a triumph to be proud of? Those who are thinking of honouring luky Varute should think twice before recommending any pendant for the Kolhapur lad. He still has many years of wrestling before him and the same thing would be to let him prove his worth in future international Meets.



S.L. Varute

Delhi University's Sudesh Kumar looked the most promising of the lot. He won three bouts from "renowned champions", and finished fourth. Kartar Singh (Punjab) and Prem Nath (Delhi) were placed sixth and eighth, respectively, in their weight divisions. They were eliminated in the third round after accumulating the maximum of six "penalty points". Raj Singh, another Delhi matman, dropped out of the Gemes after having been injured in his first round bout. Varute was the only one to end up third.

Indian athletes and tennis players also fared poorly. Javelin thrower Jhujar Singh of Ranchi University ended up 12th in the Javelin throw with a heave of 60.64 metres compared to the winner's distance of 80.08 metres. Suresh Babu (Kerala), who is essentially a high jumper, cleared 15.16 metres in triple jump. His Moscow "leap" was much below his own best and compared to the winner's 17.20-metre distance looked puny. Our lone woman athlete, Miss Ansuya Bai (Madras), obviously did nothing of note—the ticker-tape messages never mentioned her in any of the despatches. Our tennis team could have been strengthened by the inclusion of international star Vijay Amrithraj who is still a university student."

N.I.S. BRANCH IN THE SOUTH

Many states have requested the Union Ministry of Education and Social Welfare to set up a branch of the National Institute of Sports to cater to the needs of southren states. The Governing Body of the N.I.S. has accepted the proposal in principle and has appointed a sub-committee consisting of General P.P. Kumaramangalam, Mr. Kanti Choudhuri, Jt. Secretary, Ministry of Education and Social Welfare, Mr. Dilip Bose, Principal LNCPE, Gwalior and the Director NIS as its members. The committee would be visiting Kerala, Andhra Pradesh, Mysore and Tamil Nadu shortly.

CENTRAL SPORTS SCHOOLS

The Union Deputy Minister for Education, Shri Arvind Netam presided over the valedictory function of the orientation course for physical education teachers organised at NIS Patiala. He said that the government has imposed strict physical fitness conditions for our teams going abroad. Proper scientific coaching and physical fitness would be enforced in all teams so that they compete successfully in the international competitions. Sending sub-standard teams abroad resulted in disappointment.

He informed that the government will respect the autonomy of the sports federations and do not wish to interfere in their working. But committed federations are not to be encouraged. He disclosed that the union government is proposing to set up five Central Sports Schools in various regions of India. The Central Government would meet all the expenditure on education and boarding of talented students admitted to these schools. NIS centres will also be located here.

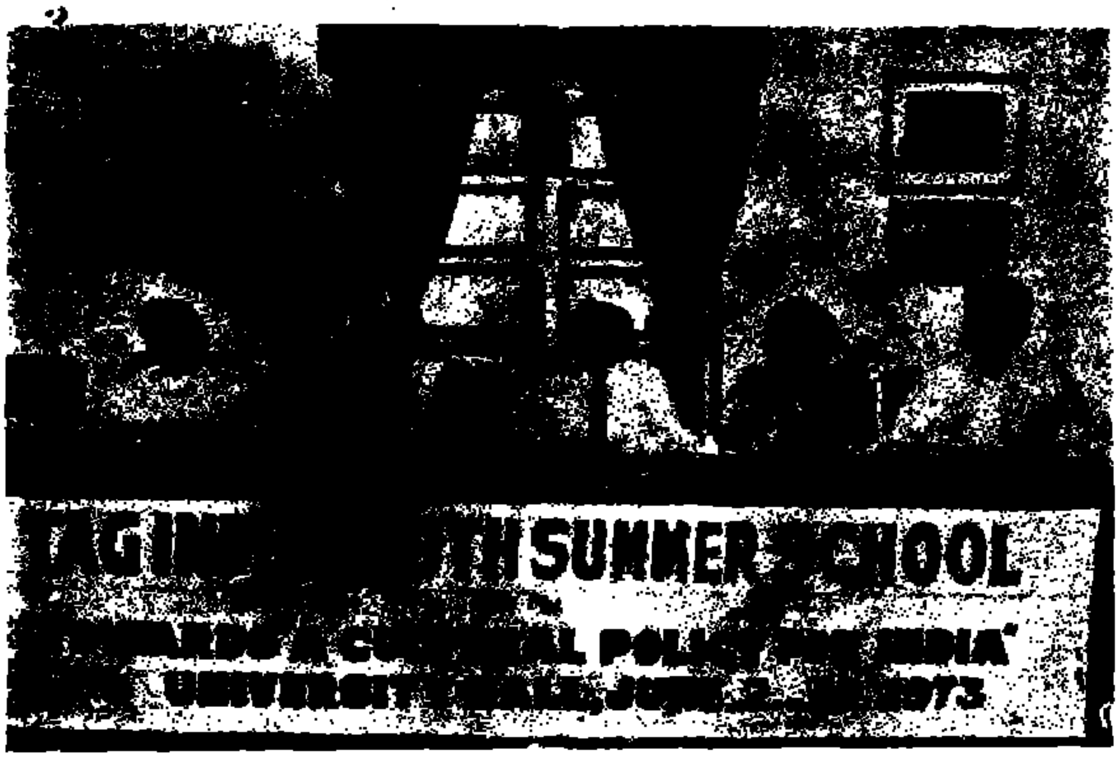
MEERUT UNIVERSITY

Wanted Research Assistants for the School of Correspondence Courses in Political Science for evaluation of assignments received from the students. Duration of post: three years or till they continue doing research. Pay: Rs. 300/- P.M. (Fixed). Should either be registered as Research Scholar or should get registered with the University at the earliest. Should have obtained 2nd class M A. Degree in the subject with average Second Class career. Desirable: Teaching Experience of about three years.

Application along with a Bank Draft of Rs. 3/- payable to Registrar, Meerut University should reach the office of Deputy Registrar (Academic), Meerut University, Meerut, by 26th September, 1973.

(S. K. Goswami)
Registrar

Youth Summer School



The Tag India organised a Summer School at Tirupati on "*youth involvement towards a* Cultural Policy for India" in collaboration with the Ministry of Education and Youth Services and the Department of Tourism, Government of India. Thirty seven participants from sixteen universities participated. The objective of the school was to impart basic knowledge about our cultural heritage to the students of colleges and universities. An exhibition on cultural heritage was also organised on this occasion.

The school was inaugurated by Mr. Ananthasayanam Ayyangar, former Governor of Bihar. Mr. M.K. Ramakrishnan, Registrar of Sri Venkateswara University presided. Mrs. Pandey, Executive Director, Tag India Organisation, welcomed the participants to the seminar. Lectures on Indian Economic Development since independence. Special problems of India. Indian Music and evolution of Indian dance, Impact on theatre and cultural life of India , Anthropology and Sociology in relation to culture, Impact of science and technology on the culture of India. Historical perspectives of Indian culture, Folk arts, Constitutional democracy at work, Mountaineering, Indian philosophy and on other related subjects were organised. In the end the participants were given an opportunity to discuss these subjects among themselves. Tours of Tirumalai, Mangalapuram and Chandragiri were also organised. Mr. Tarun Kanti Basu and Mr. M.S. Ramamurthy acted as Faculty members to guide the discussions at the group meetings.

SEX AND YOUTH COURSES

The Vice-Chancellor of Bangalore University, Mr. H. Narasimhiah, *while inaugurating* the seven day course on sex and youth for college students, made a strong plea for making sex education an integral part of the collegiate education. He said that the introduction of sex education for students at all levels was a controversial issue but there should be no hesitation in introducing it for college and university students. He said that sex was very much related to life and as such its education should be imparted by competent and qualified persons and psychiatrists. The sex education helped the students to get facts about life and would also reduce the rate of perversion, vulgarity and crime. But there should be a line of demarcation between healthy sex education and vulgarity.

Over 100 university students including girls from various colleges enrolled for the course and about ten professors conducted the classes. Amongst various subjects that were discussed, psychiatric and medical views of sex, attitude towards sex, boy-girl relationship and free sex had sufficient coverage. The courses were organised by the Cosmopolitan Youth Club in collaboration with the Vishwa Yuvak Kendra.

MADURAI MEDICAL EXHIBITION

A medical exhibition was organised by the students and staff of the Madurai Medical College recently to give the public of Madurai an inkling of the functioning of the human body through charts, models and museum specimens. There were 31 sections which gave a clear idea of how the human machine functions from the time of birth to death. The sound and light effect introduced in this year's exhibition explained the massive curriculum a medical student has to undergo before he emerges as a doctor.

The 'Devil dance' was a novel feature of the medical exhibition. It was really thrilling to watch a skeleton performing an operation on a patient which was another skeleton. The Department of Neurology displayed X-ray films on the working of the brain and control tower of the nervous system. The visitors had the additional facilities to get on-the-spot medical check up, examination of blood and urine test at normal rates.

SPECIALISTS SERVICES

Dr. K. Ramesh Pai, Director of Medical and Health Services, Andhra Pradesh, while inaugurating the specialists services as a part of community health service in the University Health Centre at Tirupati, made a strong plea for including health education under general education. In his opinion, the medical education was suffering by being attached to medical and health department in the State. Dr. Pai has extended his cooperation for securing funds for the expansion plans of the university health centre. Mr. M. K. Ramakrishnan, Registrar of the University in his welcome address pleaded with the government for subsidising the university's expenditure on health schemes and for providing a mini-ambulance van. He stressed the need for having the health survey of the university students and for providing student-teacher wards in all the teaching and district headquarters hospital for the benefit of college student.

Dr. Ramesh Pai, Director of Medical & Health Services in the Dental Clinic of SVUHC.

BIHAR VCs DECIDE TO ADOPT COMMON STATUTES

The Vice-Chancellors of the Universities in Bihar met the Chancellor in Patna recently to discuss the problems facing their institutions. It was agreed to adopt common statutes and regulations. A high level committee was appointed to work out the feasibility of the common statues and regulations for all the universities. The committee is likely to submit the report by the end of November next.

The meeting also discussed in some detail the necessity of a uniform code of conduct for the teaching staff. The Chancellor suggested to create an atmosphere with the cooperation of teaching and non-teaching staff of the universities for formulating the code of conduct. It was decided to set up a vigilance cell in each of the universities to check corruption. The Vice-Chancellors recommended the establishment of chairs for specialised study of Prakrit and Jain philosophy provided funds were made available by the Government.

The Education Commissioner, the Special Secretary of Education and other Government officials of the education department also attended the meeting. The next meeting will be held at Muzaffarpur, headquarters of Bihar University.

ONE-YEAR PRE-DEGREE COURSE

The Dibrugarh University has decided to introduce from this year a separate one-year pre-degree course in science and arts for this year's higher secondary passed students. The syllabus earmarked for the second-year classes of the existing two-year pre-degree courses would constitute the syllabi for this separate one-year pre-degree course. This decision has been necessitated due to the fact that higher secondary passed students if admitted to two-year classes of the existing two-year pre-degree course would find it difficult to complete the two-year course in a span of one-year. The newly started one-year pre-degree course would shorten the course for the higher secondary passed students in view of the time factor and also of the similarity of syllabi of the new one-year course.

DIPLOMA IN DRAMATICS

The Mysore University has taken another forward step for the promotion of fine arts with an introduction of diploma courses in dramatics. The Vice-Chancellor, Prof. D. Javare Gowda, while inaugurating the course, assured the department that the university would be providing necessary financial assistance for the institutions concerned with promotion of fine arts. He informed that courses in sculpture and painting would be planned from next year if the necessary financial assistance was made available by the government.

UNIVERSITIES FILM COURSES

The Ministry of Information and Broadcasting is considering a proposal to have regular courses in all aspects of film industry in universities as part of their syllabi. This provision would enable the students to understand the language and aesthetics of film world and at the same time would encourage talented youth to join the industry.

Existing film societies are confined to bigger cities but they fail to fulfil the role envisaged for them. At best these societies arrange the screening of various kinds of films but there is neither a preliminary introduction nor a follow up of discussion on the aesthetic qualities of the film.

In pursuance of the recommendations of the Khosla Committee on the working of the Poona Film and TV Institute, there is a proposal to expand the activities of the film institute.

INSTITUTE FOR DUBBING FILMS

The School of Languages, Jawaharlal Nehru University, New Delhi, is proposing to set up an Institute for dubbing Indian Films into various foreign languages. A regular cadre of trained personnel would be organized to translate Indian films meant for public exhibition abroad into various foreign languages. At present dubbing is done either by amateurs or by foreigners. Both of them lack the requisite knowledge and background. The Institute would have close collaboration with Delhi Telivision and the Film and Telivision Institute located in Poona.

THE STUDENTS WELFARE FUND

The Mysore University has decided to set up a benevolent fund for meeting the expenditure on students welfare activities. It is proposed to deduct two per cent of the charges paid as remuneration to university examiners. It is estimated that about twenty thousand rupees would be collected every year by such deductions. The university would meet the expenditure for providing facilities in the hostels and granting financial aid to needy persons out of these funds. Professor D. Javare Gowda has agreed to donate towards this fund, the pension he has drawn as professor of the university during his tenure of office as Vice-Chancellor.

HEALTH CARE UNDER MEDICAL COLLEGES

Medical colleges in the country will be entrusted with the health care of the entire population in their respective districts during the Fifth Plan. Mr. R. K. Khadilkar, Union Health Minister, speaking at a function in Poona said that each medical college would be given Rs 5 lakhs per year to meet the expenses on equipment, transport etc. Professors and students and ancillary staff of the colleges would visit the villages and remote areas to treat the rural population. The scheme will be a part of the curriculum of the medical course. To start with, medical colleges of Poona and Aurangabad in Maharashtra would implement the scheme as pilot project. The details of the scheme would be sorted out with the state governments and the universities. The government is also considering the question of making the internship in villages compulsory so that the rural population may get the minimum medical care which at present is denied to them.

NEW COURSES

Andhra University is planning to set up employment-oriented course on tourism from the coming academic session. A committee headed by Professor V. Subha Rao, Principal, Arts College of the university after considering the question in all aspects recommended that the course be of one year duration. Arts graduates with subjects like English, History, Archaeology and Psychology would be preferred. The intake of the course would be initially twenty. A placement in one of the tourist establishment for one month is one of the pre-requisites for the course.

The subjects of study will include psychology of the tourists, public relations, history and archaeological knowledge of intersting places. The study of the foreign languages would also be essential. The university would be taking up the matter with the University Grants Commission and the State government for necessary grants. It is expected that an expenditure of thirty to forty thousand per year would be required for starting these courses.

The Physics Department of the university is also proposing to start M. Tech. courses in Space Sciences. The Department has already a well-developed Meter Wind Radar system in one of its space research laboratories. The university is now negotiating with the Indian Space Research Organisation and the University Grants Commission for getting necessary financial assistance for starting these courses.

Subscription Rates

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University News

One year	Rs. 9/-
Three years	Rs. 25/-
Five years	Rs. 40/-

JOB ORIENTED POLYCLINICS

The Andhra Pradesh goverment is considering a proposal for the setting up of employment and production oriented cooperative polyclinics at various centres in the state. These polyclinics would provide for basic medical facilities to the rural population by employing medical graduates and other paraclinical staff. The scheme is expected to cost about Rs 510 lakhs during the Fifth Five Year Plan. The state government would share 10 per cent of the total expenditure while the cooperatives are expected to contribute another 5 per cent. The balance would be sought from the commercial banks.

Each of the clinics would be self-contained medical unit capable of day-to-day medical care both on the curative and preventive sides. The laboratory would be attached to the village dispensary and would provide facilities for routine testing. The dispensary would arrange for medicines on competitive price. The polyclinics would also provide four beds for males and four beds for females to treat emergency cases on nominal fees.

The polyclinics would be of two categories. One would be restricted and employ doctors, nurses, midwives, pharmacists, managers, radiologists and lab-technicians who will run the dispensaries. In the second type, there would be individuals residing in the area of operation of the cooperative and they are expected to utilise the services of the dispensary. A Board of Directors consisting of members of two categories of the society will manage these clinics. There would be a representative advisory committee for the guidance of the polyclinics.

NEW IIT COMPUTER

One of the most modern computer system costing Rs 1.5 crores has been acquired under the recent agreement between the West Germany and India and installed at the Indian Institute of Technology Madras. The new computer—the powerful system IBM 370/155 incorporates the latest features like tele-processing and multi-programming. People located at distant places can use the computer simultaneously. Madras would be among the few technical institutions in the world to have such a powerful computer and will be one of the national centres for the development of advanced and sophisticated computer applications. It will provide the nucleus for computer-oriented education and industrial research for the southern region. The industrial consultancy centre recently opened at IIT would bring the necessary link between the computer centre and industrial and the business users. The computer will go a long way in the designing of improved techniques for the tapping of natural resources, development of import substitutions and for instant information retrieval for a variety of purposes.

CHAIR OF GREEK STUDIES

The Panjab University has accepted the proposal of the University Grants Commission for setting up a chair of Greek Studies in the university. The university senate approved the proposal at its meeting held in the last month. A visiting professor would be on the campus initially for two years.

POSTGRADUATE CORRESPONDENCE COURSES

Andhra University would be the first in Southern India to start industrial relations and labour welfare courses. The government of Andhra Pradesh has recognised these courses as a prerequisite for appointment of the personnel in the field of labour and personnel management. Various industrial establishments in the State have also indicated their preference for graduates with such a course. There is a proposal to collaborate the activities of the department with the Tata School of Social Works at Jamshedpur.

The School of Correspondence Courses of the University is also planning to offer M. A. and M. Com degree courses from the next academic session.

PERSONAL

1. Prof. P.L. Bhatnagar, former Vice-Chancellor of Rajasthan University, has been appointed a member of Union Public Service Commission.

2. Mrs. Romila Nandi, Director, Higher Education, Bihar, has taken over as the Vice-Chancellor of Patna University from Mr. Sachin Dutta w.e.f. August 12, 1973.

3. Dr. I.P. Agarwal has been appointed the Acting Vice-Chancellor of Jiwaji University w.e.f. July 27, 1973.

4. Prof. Krishnaji of Physics Department, Allahabad University has been appointed Pro-Vice-Chancellor of the University w.e.f. August 22, 1973.

5. Dr. L. P. Vidyarthi, Head of the Deptt. of Anthropology, Ranchi University, will lead the delegation of Indian Anthropologists to the Ninth International Congress to be held at Chicago from August 28 to September 8, 1973.

6. Dr. Y. Raghaviah, Reader in Public Administration, University College of Arts and Commerce, Osmania University, has been awarded the British Council Fellowship for making a special study of local self Govt. at Birmingham University.

7. Dr. C.K. Abdul Kareem has been appointed the Registrar of the Cochin University w.e.f. August 1, 1973.

BOOK NOTES

1. *All India Association for Christian Higher Education, Delhi. Minority educational rights in the Indian constitution.* Delhi, Author. 1972. viii, 85p.
Contains major judgements of the Supreme Court and the High Courts of India, relating to Article 30 (i) of the Constitution of India which gives linguistic and religious minorities the fundamental right to run educational institutions of their choice, supplemented by an illuminating introduction to the various provisions in the Indian Constitution that guarantee fundamental rights relating to the religious minorities.

2. Dasgupta, Subhayu. Hindu ethos and the challenge of change. Calcutta, Minerva, 1972. xv, 277p.
The study will help not only those who had no opportunity to know the life style of the Hindus but also those among us who might not have recognised the powerful pull of the cultural factors to appreciate their value and role in the crises pervading India today due to the failure of the development plans.

3. Desatnick, Robert L. Innovative human resource management. American Management Association, 1972. 208p.
Relates major personnel problems in recruitment, utilization, motivation, development, compensation and retention to the realization of corporate objectives, and presents management tools designed to reduce the waste of human resources and increase both corporate and personal rewards. Primary focus is on the creation of a new position, the vice-president of human resources, to replace the traditional role of the conventional personnel administrator.

4. Freire, Poulo. Pedagogy of the oppressed. Middlesex, Penguin, 1972. 153p.
Freire regards education as means by which men can perceive, interpret, criticise, and finally transform the world about them. His attack on the 'culture of silence' has contributed in an extraordinary way to the development of a sense of purpose and identity among the oppressed and demoralized in Brazil. He proposes a view of education as something positive and also hazardous, a means of liberating people and enabling them to participate in the historical process.

5. La Noue, George R., Ed. Educational vouchers: Concepts and controversies. New York, Teachers College Press, Columbia University [c 1972] viii, 176p.
Presents an in-depth study of the concept of educational vouchers that will change the traditional system of using tax funds to finance public schools to an arrangement of providing tax vouchers to individual parents who would purchase education in a market place of diverse schools. The perspectives and the arguments in the debate over the probable impact of the various types of vouchers on educational quality and equality are juxtaposed to help readers arrive at their own conclusions.

6. Mullen, Edward J. and others. Evaluation of social intervention. San Francisco, Jossey-Bass, 1972. xvi., 267p.
Based on sixteen key evaluation projects, presents an in-depth review of the reasons for the limited results of social work, proposes remedies and sets forth priority actions for reform. It is a rigorous examination of social welfare programme impact.

7. Smith, Goldwin. *Comp.* Professor and the public. Detroit, Wayne State University Press. 1972. 124p.
What is the scholar's responsibility to the public today? is answered in witty, learned, and forceful prose filled with sound and unsentimental sense.

8. Staely, Eugene. Work-oriented general education: A proposal for curriculum development at the school stage. Bombay, Popular, 1973. vii. 120p.
Offers suggestions on how India's schools might contribute to economic development by preparing youngsters more effectively to enter employment, to produce efficiently, and thus to advance the economic well-being of themselves and their country. Gives concrete ideas on how the curriculum might be made more work oriented and on the design of new instructional material and methods.

9. Swope, George S. Dissent: The dynamic of democracy. New York, Amacom-A division of American Management Association, 1972. v, 247p.
A how-to-do-it manual on managing confrontations without abridging the right to dissent, without abdicating authority, without adding fuel to the fire and without storing up trouble for the future.

10. Vermilye, Dyckman W., *Ed.* Expanded campus. San Francisco, Jossey-Bass, 1972.
'Expansion' forms the core of all the essays in this collection. New curriculums and various alternatives like off-campus centers, open university models are being tried. Undergraduate instruction, departmental structure and the graduate education are being reappraised. Professors challenged by accountability and unionism are beginning to move out of their ivory towers. This book reports on what is happening and what has happened.

THESES OF THE MONTH

PHYSICAL SCIENCES

Mathematics

1. Jothilingam, P. Topics in commutative algebra: Gorenstein rings, duality between the derived factors of MOR and HOMR (M), Generalised M-sequences. Bombay University.

2. Shanti Swarup. Some singular perturbation problems in hydromagnetics and hydrodynamics. Indian Institute of Technology, Delhi.

Physics

1. Anjaneya Sastry, B. Studies on the electron spin resonance spectra of some copper complexes. Osmania University.

2. Chaturvedi, Dhiraj Kumar. A study of atomic self correlation function and slow neutron scattering in classical fluids. Delhi University.

3. Kalkar, A.K. Spectroscopic studies of substituted benzenes. Bombay University.

4. Kashyap, Subhash Chand. Growth of zinc oxide crystals from vapour and liquid phase techniques. Indian Institute of Technology, Delhi.

5. Kunwar, A.C. Study of molecules oriented in liquid crystalline media. Bombay University.

6. Phadke, Uday Pandurang. Interaction of high fields with polar semiconductors and dialectrics. Indian Institute of Technology, Delhi.

7. Vaishampayan, Nandini Vishwanath. Optical studies on crystal surfaces, selenium. University of Baroda.

Chemistry

1. Annaji Rao, A. Search for physiologically active compounds: Synthesis of some substituted benzofurans and aurones. Osmania University.

2. Bist, Dharam Pal Singh. Studies on mechanism of oxidation reaction of lignin derived from bamboo (Dendrocalamus strictus). Meerut University.

3. Jadon, Devendra Singh. Physico-chemical studies on the metal complexes with sulphur containing ligands. Meerut University.

4. Kaul, M.K. Studies on the coordination compounds of some organic thioacids. University of Kashmir.

5. Man, Sumer Singh. Study of the complexes formed from ethereal blue perchromate with nitrogenous organic bases. Meerut University.

6. Mavani, Ishwarlal Popatlal. Studies in some metallic complexes in mixed ligand systems. University of Baroda.

7. Mehrotra, Gita. Studies on some organometallic compounds as fungicides. Kanpur University.

8. Shanta Amarlal. Biochemical studies in magnesium deficiency. Kanpur University.

Earth Sciences

1. Moiz, Ahmed Abdul. Correlation of coal seams in Godavari Valley Coal Basin, A.P., India. Osmania University.

Engineering & Technology

1. Jagdish Prasad. Some investigations on scuffing mechanism and critical temperature of boundary lubricants. Indian Institute of Technology, Delhi.

2. Thapar, I.G. Studies in mixed fatty acid esters of propylene glycol. Bombay University.

BIOLOGICAL SCIENCES

Biochemistry

1. Shah, Purushottam Bhogilal. Studies on acid base and electrolyte status in the neonatal infants. University of Baroda.

Microbiology

1. Gardre, S.V. Studies in corgne bacterium diphtheriae and its phages. Bombay University.

Botany

1. Gupta, Mithilesh Prasad. Biochemico-genetic analysis of adaptation in cultivated cotton. Meerut University.

2. Manmohan Singh. Mutations induced in groundnut (Arachis hypogae L.) by gamma radiation and ethyl methanesulphonate. Punjab Agricultural University.

3. Ramaswamy, N.M. Investigations on induced mutagenesis in blackgram (Phaseolus mungo L.) Tamil Nadu Agricultural University.

4. Sirkar, Sheela. The respiratory processes of manganese toxic cotton plants. University of Baroda.

5. Vasant Rao. Monographic study on Satwalekera and observations on some hyphomycetes of South India. Marathwada University.

Zoology

1. Grover, Satya Pal. Faunal survey and ecology of Doon Valley fishes. Meerut University.

2. Harbhajan Singh. Studies on gonadial cycles, fecundity spawning seasons and reproductive ecology of some Kashmir fishes. University of Kashmir.

3. Mandloyi, Arvind Kumar. Innervation of the digestive tube in certain birds. Indore University.

4. Sharma, Vidya Sagar. Studies on the morphology and histocytology of the nervous system of Vespa orientalis L. (Hymenoptera: Vespidae). Meerut University.

5. Tarachand, U. Protein metabolism of placenta and liver of mice. Bombay University.

6. Virdi, Gurdeep Singh. The relative toxicity of certain indigenous plants on some fresh water fishes. Meerut University.

Agriculture

1. Edison, S. Investigations on the grassy shoot disease of sugarcane, Saccharum officinarum L. Tamil Nadu Agricultural University.

2. Ghosh, Atin. Inhibition of tobacco mosaic virus (CPO strain) by phenols and coumarins. Kanpur University.

3. Jose, A.I. Studies of soil phosphorus in South Indian soils of neutral and alkaline reaction. Tamil Nadu Agricultural University.

4. Om Prakash. Studies on soil fertility and plant density relationship in dwarf wheats. Meerut University.

5. Rajinder Parshad. Differential contribution of some correlates of village level workers influencing their communication effectiveness in the context of high yielding varieties programme. Punjab Agricultural University.

6. Sreenivasan, P.S. Studies in agricultural meteorology of some field crops. Mahatma Phule Krishi Vidyapeeth.

Veterinary Science

1. Khan, Ali Ahmad. Study on bone grafting technique with particular reference to long bones and its practical application in bovines. Magadh University.

2. Omkar Parshad. Studies on thyroid gland in relation to sexual maturity and egg production in chickens. Punjab Agricultural University.

SOCIAL SCIENCES

Psychology

1. Sathi, K. A comparative study of the personality characteristics of over-achievers and under-achievers of high ability. University of Kerala.

Sociology

1. D'Silva, Loui. Culture and Politics: A study of the christian community of Bombay. Bombay University.

Political Science

1. Mathews, K. Regionalism and international security: A case study, Jawaharlal Nehru University.

2. Sinha, Sukhdeva. Politics in monastries. Magadh University.

Economics

1. Dhawan, Krishan Chand. Impact of new technology and varying product prices on optimum agricultural production patterns in Punjab. Punjab Agriculural University.

2. J.L.V. Prasad. A regional study in production and marketing of flue cured virginia tobacco in Andhra Pradesh. Tamil Nadu Agricultural University.

3. Joginder Singh. Impact of technological advance on income distribution in Rural Punjab. Punjab Agricultural University.

4. Kale, Indu D. Financial analysis of private limited service companies in Maharashtra. Bombay University.

5. Kalyankar, Girdhari Sonaji. Common market for Southeast Asia. Marathwada University.

6. Puri, Suraj Prakash. Comparative study of trade union movements in the context of the economic development with special reference to India. Meerut University.

Commerce

1. Avinash Narayan. Trends in industrial relations in the large scale industries of Kanpur since 1951. Kanpur University.

2. Mannu Singh. Uttar Pradesh ke purvi zilon ke arthik vikas mein laghu evam greh udyogon ka yogdan. Kanpur University.

Education

1. Gupta, Ashok Kumar. A study of interaction between step-size and response mode for a programme in action research. Meerut University.

2. Mithal, Harish Chandra. Professional education in India 1881-1961: A developmental and critical survey. Kurukhshetra University.

3. Sen, Arati. Mahatma Gandhi's educational philosophy. Bombay University.

HUMANITIES

Philosophy

1. Sinha, Umeshwar Prasad. Contemporary Indian social philosophy with special reference to Mahatma Gandhi, Vinoba and Jaya Prakash. Magadh University.

2. Tulku, Artsa. Life of Mahatma Tsong-Khapa and his work. Magadh University.

Linguistics

Badiger, Parashuram Balappa. Noun morphology in middle Indo-Aryan. Shivaji University.

Arts

Barua, P.C. Rajasthani painting: A study in subject-matter. Meerut University.

Literature

English

Atma Ram. Women characters in the novels of Jane Austin. Panjab University.

Sanskrit

1. Jain, Kusumlata. Leelabayee Kuha ke vishesh sandharbh mein Prakrit katha kavyon ka alochanatmak adhyayan. Indore University.

2. Kamat, S.A. Solar myths and symbol in the Vedic literature. Bombay University.

3. Kamath, Devadatta. The doctrine of Jivatman in the works of Madhvacharya. Karnatak University.

Hindi

1. Dabral, Shri Vilas. Adhunik Hindi kavya mein reetitatwa (Bhartendu se Ratnakar tak). Meerut University.

2. Garg, Sherjang. Swatantryottar Hindi kavita mein vyang. Indore University.

3. Jain, Vipin Kumar. Sur ke vatsalya ras ke padon evam vipralambh shringar ke padon ka mano bhasha vaigyanik adhyayan. Meerut University.

4. Madhu Bala. Nayi kahani ka shilp vidhan. Meerut University.

5. Moti Ram. Gajanan Madhav Muktibodh: Vyakti anubhav aur abhivayakti. Meerut University.

6. Nirmala Kumari. Vidyapati: Ek sanskritik rasanusheelan. Magadh Univrsity.

7. Radhika Singh. Mahadevi Verma ke kavya mein lalitya yojna. Meerut University.

8. Sharma, Khjan Singh. Janender ke upanyas: Chintan aur shilp. Indore University.

9. Shobha, Sobhagyavati Skhukla. Acharharya Nand Dularey Vajpayi: Vyaktitawa evam krititawa. Kanpur University.

10. Thakur, Inderraj Singh. Nirala kavya ka adhyayan: Chhayavad ke vishesh sandharbh mein. Indore University.

Marathi

1. Chitnis, Ramchandra Vaman. Ramdasanchi kavya sarshti: Ek abhyas. Shivaji University.

2. Pranjape, Tara Nagnathrao. Study of folk literature of the eastern border of Marathwada. Marathwada University.

Kannada

Dharwadkar, R.Y. Hosagannada sahityada udayakala uttara karnatakavannu anulakshishi. Karnatak University.

Geography

Tejveer Singh. Geographical analysis of tourist industry in U.P. Kanpur University.

History

Chaudhari, Surajbhan Ratansingh. Prehistoric archaeology of the Sarasvati and Drisadvati Valleys, Haryana: C. 2300—1500 B.C. University of Baroda.

ting and Control; 3. International Economics/Commerce. Monetary Economics or Industrial Economics. 4. Economic Theory or Economic Development.

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The prescribed application forms for the posts can be had from the Office of the Director, South Campus (D-25-D, New Delhi South Extension Part II, New Delhi-110049) either personally or by sending a self-addressed envelope with stamps worth Rs. 1.35.

Selected candidates will be required to produce the original documents relating to their age, qualifications, experience etc., before joining the appointment.

Applications along with the attested copies of Degrees and other Certificates etc., should reach the Director, South Delhi Campus not later than the *20th September, 1973.*

NOTES:

1. It will be open to the University to consider the names of suitable candidates who may not have applied. Relaxation of any of the qualifications may be made in exceptional cases in respect of all posts on the recommendation of the Selection Committee.

2. Canvassing in any form by or on behalf of the candidates will disqualify.

3. Candidates called for interview from outside Delhi will be paid contribution towards their Railway Fare as per rules.

REGISTRAR

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA BARODA

Notification No. 12

Applications in the prescribed forms are invited on or before *24th Sept, 73* for the following posts. Prescribed application forms will be available from the undersigned on pre-payment of Rs. 8-50 by means of Crossed Postal Order.

Department of Continuing/Adult Education

Reader: (One post) Scale: Rs. 700-50-1250
Qualifications

(i) A first or second class Master's Degree of a statutory University in Continuing/Adult Education or an equivalent qualification of a foreign University in the subject concerned.

OR

A first or second class Master's Degree in Social Sciences, Behavioural Sciences, Natural Sciences or Humanities of a statutory University or an equivalent qualification of a foreign University in the subject concerned with a research degree of a Doctorate standard or published work in Continuing/Adult Education.

(ii) Five years' teaching or research experience at a University or College or a related institution of repute.

(iii) Candidates with experience in curriculum development, educational planning, evaluation and administration in the field of Continuing/Extension/Adult Education are preferred. Responsibilities include teaching, research, programme development/Co-ordination and others assigned by the Head of the Department.

Lecturer: (One post) Scale: Rs. 400-40-800-50-950:

Qualifications

(i) A first class Master's Degree in Continuing/Adult Education, Social Sciences, Behavioural Sciences, Natural Sciences or Humanities of a statutory University or an equivalent qualification of a foreign University in the subject concerned with one year's experience of teaching or research at a University or a College or a related institution of repute.

OR

A second class Master's Degree in Continuing/Adult Education, Social Sciences, Behavioural Sciences, Natural Sciences or Humanities of a statutory University or an equivalent qualification of a foreign University in the subject concerned with two years' teaching or Research experience at a University or a College or related institution of repute.

(ii) Specialization: Industrial Economic or Business Economics or Commerce or Business Administration.

Responsibilities include teaching, research, programme development, Co-ordination and others assigned by the Head of the Department.

The posts carry D.A., H.R.A., P.F. and Gratuity benefit as per University rules.

Applicants when called for interview will have to come at their own expense.

GENERAL INSTRUCTIONS

(1) The posts carry D.A., H.R.A., P.F. and Gratuity benefit as per University rules.

(2) For Reader's post six copies and for Lecturers post one copy of the prescribed application form completed in all respects with enclosures i.e. certified copies of the certificates, testimonials and reports of research papers are required. Those who are already in employment elsewhere have to send in advance 5 copies of application as above in case of Reader and one copy on plain paper in case of Lecturer to this office.

(3) Incomplete applications or those received late or on plain papers will not be considered.

(4) The application forms should reach on or before 24-9-1973.

K.A. AMIN
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY-76

ADVERTISEMENT NO. 761

Applications are invited from Scientists, Engineers and Technologists for the Inter-disciplinary Activities being organised with a view to promoting research & development, projects of relevance to the economy of the country and academic programmes. Faculty positions of Professors, Assistant Professors and Research Associates and non-teaching positions of Workshop and Assistant Workshop Superintendents are available. The appointments will be on an Institutional basis and the persons selected may hold joint appointment in more than one department simultaneously. The Institute is currently interested in strengthening the following fields of specialisations.

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1. Signal Processing, System Identification and Simulation, System Modelling.

2. Control, Guidance and Instrumentation System with applications to Aerospace Science.

3. Urban Planning, Integrated Design of Structural Systems incorporating new materials, Transportation Systems and related fields.

4. Environmental Engineering, Pollution Control, Water Resources Management, Socio-economic and Ecological aspects of environment.

5. Man-Machine Systems, Biomedical Engineering, Behavioural Science, Management, Society-Science Relationship, Research-Development Analysis.

B. SYSTEMS HARDWARE DEVELOPMENT AND UTILISATION

1. Control and Instrumentation System Hardware, Transducer Design and Development.

2. Materials Science and Technology.

3. System Application and Services.

C. COMPUTER SCIENCE

Formal Languages and Automata, Programming Languages and Systems, Digital Simulations, Computer Structures, Artificial Intelligence, Speech Analysis and Synthesis, Information Retrieval, Numerical Analysis, Operations Research and Management Data Bases Process Control.

FACILITIES AVAILABLE

The interdisciplinary activities will draw support from the well-established engineering/science departments, Computer Centre and Cetnral Library of the Institute. The Computer Centre is equipped with a MINSK-2 Computer and will be shortly acquiring a third generation R-1030 Computer System. Substantial Analog Simulation facilities are also available. The Institute provides facilities for postgraduate instruction and research leading to the Masters and Doctorate Degrees. Research and teaching by the faculty is encouraged and opportunities exist for liaison and consultation work with industry.

POSITIONS AVAILABLE

1. Vacancies for the Academic positions exist at the levels of Professors *(Rs. 1600-100-1800 and 1100-50-1300-60-*1600), Assistant Professors (Rs. 700-50-1250), Research Associates (between Rs. 700 and Rs. 1600 consolidated remuneration).

2. Vacancies *for* the non-teaching positions exist at the levels of Workshop Superintendents (Rs. 700-50-1250) and Assistant Workshop Superintendents (Rs. 400-950).

QUALIFICATIONS

Academic positions

For Professors, Assistant Professors and Research Associates the applicants should have an excellent academic record in Science or Technology and aptitude *for teaching, research and development.* In case of candidates of exceptional and proven ability formal educational qualifications may be relaxed. A candidate will be considered for appropriate post commensurate with his qualifications, experience and contribution in the related fields.

Non-Teaching positions

For Workshop and Assistant Workshop Superintendents the applicants are normally expected to have preferably a degree in one of the special areas given above and should have exceptionally good industrial experience and competence in design, development or application of systems hardware

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RESPONSIBILITIES

Academic Positions

Professors, Assistant *Processors and* Research Associates are expected to organise and develop the laboratories on selected lines of research and development work. They should be able to offer advanced *courses of instruction*, plan and supervise the work of research students registered for Doctorate degree in their special fields.

Non-Teaching positions

Workshop Superintendents are expected to be able to design, develop and maintain sophisticated instruments and computer systems and supervise the laboratories and systems utilisation facilities.

All posts carry the usual allowances besides pay, as per rules of the Institute. Higher initial pay is admissible to deserving candidates of proven ability. The age of retirement is 60 years. Accommodation is provided in the Institute Campus with 10 percent of the salary as the licence fee.

Candidates called for interview will be reimbursed second class railway *fare* from the place of their residence to Bombay and back by the shortest route.

Applications from persons in India should be made on the prescribed form *obtainable* free of charge from the Registrar of the Institute by sending a self-addressed envelope of 25 cm x 10 cm size.

Applicants from abroad may apply on plain paper (Three copies).

Complete applications with a Crossed Postal order for Rs. 7.50 (Rs. 1.88 in the case of Scheduled Castes, tribal or aboriginal communities candidates) marked payable to Indian Institute of Technology, Bombay, should reach the Registrar, Indian Institute of Technology, P.O.I.I.T. Powai, Bombay-400076 by *25th September* 1973.

BERHAMPUR UNIVERSITY
BERHAMPUR-7 (GANJAM)
ORISSA

No.—6354/GE-I-53/73/Admn/BU,
Berhampur, Dated 10th August 73.

Advertisement

Applications are invited for the following teaching posts for the post-graduate Departments of this University.

Sl. No. Subject. Post Vacant No. of Vacancies.

1. Journalism—Reader—One.
2. do. —Lecturer—One.
3. History—Lecturer—One.

Scale of Pay

(i) Reader: Rs. 700-50-1250/-.
(ii) Lecturer: Rs. 400-40-800-50-950/-

Plus usual Dearness allowance as admissible by the University from time to time.

Qualification and Experience

(1) **Reader in Journalism**: The candidate shall have at least a Master's Degree in Journalism and teaching and/*or professional experience for at least* eight years.

Or

At least a second class Master's Degree with a minimum of 48% marks and a *Degree or Diploma in Journalism* with teaching and/or professional experience for at least eight years.

(2) **Lecturer in Journalism**: The candidate shall have at least a Master's Degree in Journalism or a second class Master's Degree with a minimum of 48% of marks with five years of journalistic experience in a responsible capacity *in a* News paper or News *Agency* of repute.

Note: The above qualifications may be relaxed in case of persons who have held responsible positions in Newspapers or News Agencies of National or International repute.

(3) **Lecturer in History**: The candidate shall have a first class or second class Master's Degree (with at least 48% marks) in the subject.

Seven copies of the prescribed application *form* will be supplied to the candidates from the office of the undersigned on payment of Rs. 1.50 paise in person or by Bank Draft drawn on State Bank of India or by Money order in *favour of the Registrar, Berhampur* University, along with a self addressed envelope measuring 22x10 cms, affixed with postage stamps worth 0.80 paise.

The applications duly filled in along with attested true copies of certificates, testimonials and publications etc., should reach the undersigned on or before *10th September*, 1973. Applications received after the due date will not be entertained.

Candidates who are in service should apply through proper channel.

The prescribed period of experience for the posts will be calculated up to *the last date fixed for the receipt of* applications.

R. C. RAJGURU
REGISTRAR

UNIVERSITY OF DELHI
DELHI

Applications are invited for the following posts-

1. **Professional Senior** (Rs. 700-50-1250).

Qualifications: (a) (i) First or high second class B.A./B.Sc./B.Com. and First or high second class M. Lib. Sc. *Or (ii) First or high second class M.A./* M.Sc./M.Com. and First or high second class B. Lib. Sc. OR First or high second class post-graduate diploma course. (b) Active interest in academic and research work *supported by papers or* projects of merit. (c) At least 5 years' experience as Librarian or of working in a responsible capacity in an Academic Library where he has proved his initiative and organisational and administrative ability.

2. **Professional Junior**: (Rs. 400-40-800-50-950)—2 posts.

Qualifications: (a) (i) First or high second class B.A./B.Sc./B.Com. and First or high second class M. Lib. Sc. OR First or high second class M.A./M.Sc./M.Com. and First or high second class B. Lib. Sc. or first or high second class post-graduate diploma course. (b) At least two years' experience in a professional capacity in a library of standing.

All posts carry dearness, city compensatory, house rent allowances and retirement benefits as admissible under the rules in force from time to time.

Applications along with the attested copies of degrees and other certificates etc., stating date of birth and details of academic qualifications and experience should reach the Director, South-Delhi Campus (University of Delhi), D-25-D, N.D.S.E. Part II, New Delhi 110049 not later than *September 24, 1973.*

Note:

1. Relaxation of any of the qualifications may be made in exceptional cases in respect of all posts on the recommendations of the Selection Committee.

2. Canvassing in any form by or on behalf of the candidate will disqualify.

3. *Those already in employment should send their applications through proper channel.*

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O.I.I.T. POWAI, BOMBAY-76

ADVERTISEMENT No. 762

Applications on plain paper are invited from the Citizens of India for the following posts on or before *25th Sept.* 1973 by the Registrar, Indian Institute of Technology, Powai, Bombay-76. Copies of certificates and crossed Indian Postal Order for Rs. 3/- (75 paise for Scheduled Caste/Tribes) payable to I.I.T., Bombay-76 should be enclosed. Persons employed in the Government/Semi Govt. Organisation or Educational Institution must apply through employer. The name of the post and department should be mentioned on the top of the application. Incomplete applications will not be considered. Some posts are reserved for candidates belonging to Scheduled Castes and Scheduled Tribes and Ex-servicemen. Age preferably below 30 years, relaxable in deserving cases. Post at serial No. 1 carries allowances such as D.A., C.C.A. etc., as per the rules of the Institute. Applicants must state:—

(i) Name in full with address.

(ii) Qualifications such as examinations passed, date of passing etc.

(iii) Particulars of past and present *employment with salary.*

(iv) Date of Birth with relevant certificate.

(v) Candidates belonging to SC/ST and Ex-servicemen should attach a copy of certificate to that effect.

POSTS

1. **Workshop Supervisor**

*Scale of pay-Rs. 250-10-290-15-380-*EB-15-470.

Qualifications:—

Diploma in Mechanical Engineering with 3 years working experience or regular apprenticeship for 4 to 5 years in *an Industrial* Establishment of repute plus 3 years shop experience in an Industrial/Research establishment. Must have acquired sufficient skill in the operation of Lathes, Milling and Shaping machines, and practice in precision tool room preparing jigs and fixtures.

Experience in fabricating scientific equipments desirable.

Qualifications relaxable in case of candidates of proven ability with adequate number of years of service and experience. The post is not supervisory but operative.

2. **Clerk of Works**—Temporary charged to works for about one year.

Scale of pay : Rs. 400-25-500. (Consolidated).

Age: Retired persons below the age of 60 years are also eligible.

Qualifications:—

(a) CIVIL

A Degree or Diploma in Civil Engineering. Minimum 3 years experience for a degree holder and 5 years experience for a diploma *holder in a responsible* position in preparation of estimates *for large* Civil works, *i.e.* works involving construction of buildings, plumbing, water supply and severage. Supervision of various sites of works in the Institute's campus, preparation of bills for the contractors and recording measurements. Experience in P.W.D. procedure desirable.

(b) Electrical

A Degree or a Diploma in Electrical Engineering. Minimum 3 years experience for a Degree holder and 5 years *experience for a Diploma* holder in a *responsible* position in preparation of estimates for electrical works including domestic wiring, power supply. Supervision of various electrical works in the Campus. Preparation of bills for contractors and recording measurements. Experience in P.W.D. procedure. Knowledge of Indian Electricity Rules. Electrical Supervisor's licence.

UNIVERSITY OF SAUGAR

Advertisement No. R. 5/73

Applications on the prescribed form *(obtainable from the undersigned)* accompanied by a self-addressed envelope and a postal order of Rs. 5-00 in each case are invited for the following posts so as to reach the undersigned by 22nd September, 1973.

(1) A Professor of Zoology (Permanent).

(2) A Professor of Applied Geology (Permanent).

Those who had already applied for this post last year in response to our advertisement No. R. 4/72 dated 7.7.72 *should indicate if their applications* be considered.

(3) An Assistant Professor in the *Anthropology & Sociology* (Permanent) with *specialisation in Anthropological and Sociological Theory and Political Sociology*:

This post has been substituted in place of the post of one Assistant Professor in Physical Anthropology ad*vertised in our* Advertisement No. R. 4/73.

QUALIFICATIONS

Professor

(i) A Doctor's Degree and/or high academic attainments with wide recognition for scholarship and original contribution to the subject.

(ii) Published work to their credit.

(iii) Extensive experience of conducting and guiding research.

(iv) At least 10 years experience of *teaching post-graduate classes or should* have had at least *10 years'* experience of Advanced Research in the case of Applied Geology.

(v) A good working knowledge of Hindi both written and spoken.

Assistant Professors

(i) A first class Master's or an equivalent degree recognised for the purpose by the University; OR A second class Master's degree or an equivalent degree recognised by the University with at least 2 *years teaching experience of post*graduate classes preferably at a University or with recognised research work.

(ii) He must be able to teach in Hindi.

Salary Scale

Professor: Rs. 1100-50-1300-60-1600.

Assistant Professor: Rs. 400-40-800-50-950.

P. BAJPAI
ACTG. *REGISTRAR*

गोरखपुर विश्वविद्यालय, गोरखपुर

विज्ञापन

निम्नलिखित रिक्त स्थानों की पूर्ति के लिए आवेदन पत्र आमन्त्रित किए जाते हैं। आवेदन विश्वविद्यालय द्वारा निर्धारित प्रारूप-पत्र पर किया जाना चाहिए। आवेदन के प्रारूप पत्र की आठ प्रतियां कुलसचिव के कार्यालय से ५/- प्रोफेसर एवं २/- प्रवक्ता पद के लिए नगद या कुलसचिव के नाम का पोस्टल आर्डर भेजकर प्राप्त की जा सकती हैं। आवेदन-कर्ता यदि किसी संस्था में नियुक्त है तो आवेदन पत्र नियोक्ता द्वारा अग्रसारित होना चाहिए। आवेदन पत्र कुलसचिव के कार्यालय में १५ सितम्बर, १९७३ तक अवश्य पहुंच जाना चाहिए।

नियुक्त होने वाले अभ्यर्थी को संचित निधि प्राप्त करने की सुविधायें विश्वविद्यालय के नियमानुसार प्राप्त होंगी। सेवा की सामान्य शर्तें सेवा संविद पत्र में निर्धारित नियमों के अनुसार होंगी। नियुक्त अभ्यर्थी को संविद-पत्र पर कार्यभार ग्रहण करने के पूर्व या उसके बाद यथा शीघ्र हस्ताक्षर करना होगा।

१—प्रोफेसर एक (स्थायी) शिक्षा विभाग
वेतन रु० ११५०-५०-१३००-६०-१६००/- प्रति मास

अर्हतायें :

अभ्यर्थी को अपने विषय का ख्यातिलब्ध विद्वान होना चाहिए। उसके द्वारा लिखित उच्च स्तरीय शोध कार्य प्रकाशित होना चाहिए। उसे अध्यापन एवं शोध कार्य निर्देशन का पर्याप्त अनुभव होना चाहिए।

२—प्रवक्ता एक (स्थायी) विधि विभाग
वेतन रु० ४००-४०-८००-५०-९५०/- प्रति मास

UNIVERSITY OF POONA

Applications are invited for the undermentioned posts, in the various Departments of the University. Particulars together with the general requirements prescribed by the University for the posts be obtained from the Registrar, University of Poona, Poona-7. Requests for forms must specify the name of the post and should be accompanied by a self-addressed envelope (23 cm. x 10 cm.) bearing postal stamp of 50 Ps. for one set *(consisting of seven applications). Applications should reach* the Registrar on or before 29*th September* 1973.

1. DEPARTMENT OF CHEMISTRY

(a) *Two Lecturers*

Qualifications essential:

1st Post:

First or Second Class M.Sc. in Physical Chemistry with a Ph.D. degree preferably. Research Experience in Nuclear and Radiation Chemistry.

2nd Post:

First or Second Class M.Sc. in Physical Chemistry with a Ph.D. degree preferably. Research Experience in Magneto Chemistry or Electrochemistry or Theoretical Chemistry.

(b) *One Lecturer in Biochemistry*

Qualifications essential:

First or Second Class M.Sc. in Biochemistry by papers. Strong *either* in Enzymology and Metabilism *or* in nucleic acids.
A research degree and published work would be an additional qualifications.

(c) *One Lecturer in Organic Chemistry (Temporary)*
First or Second Class M.Sc. in Organic Chemistry by papers. Strong in Physical-Organic Chemistry.

2. DEPARTMENT OF PHYSICS

(a) *One Lecturer*

Qualifications essential:

A minimum second class Master's Degree in Physics (With Electronics as a specialization) and a Ph.D. Degree in Physics with electronic bias.

Note : (i) Candidate should have experience of designing and building electronic instrument used for the research work in Solid State Physics, Auger Spectroscopy, Solid State Electronics and Nuclear Physics.

(ii) Candidate should be capable of teaching courses in electronics such as solid state microwave devices, solid state electronics circuit design and instrumentation.

(iii) Candidate should be capable of guiding research in electronics especially in new techniques.

(b) *Two Demonstrators*

(i) A candidate should have at least Second Class in M.Sc. (Physics) with the specialization in the following subjects :

(i) Electronics (ii) Electron and Ion Physics

(iii) Spectroscopy (iv) Solid State Physics

(v) Upper atmosphere and Space Physics.

3. DEPARTMENT OF BOTANY

(a) *One Reader*

Qualifications essential:

Specialization in Cytology, Genetics, Plant Breeding.

Qualifications desirable:

First hand knowledge of field methods involved in Plant Breeding.

(b) *One Lecturer (Microbiology)*

Qualifications essential:

An uptodate knowledge of the Morphology, Taxonomy and Biology of Micro-organisms.

Qualifications desirable:

A background of applied Microbiology.

(c) *One Demonstrator*

Qualifications essential:

(i) At least 2nd Class at both M.Sc. (by Papers) in Botany and B.Sc. (Principal) Botany.

(ii) Experience of teaching and/or practical instruction in Phycology and Hydrobiology.

Qualifications desirable :

Some research experience.

4. DEPARTMENT OF ZOOLOGY

One Lecturer

Qualifications essential :

M.Sc. and Ph.D. in Biochemistry to teach Post-Graduate students in Zoology.

Note : (Candidate with research experience will be given preference)

5. DEPARTMENT OF MATHEMATICS & STATISTICS

(a) *One Professor of Statistics*

Qualifications essential:

Specialization in *one* of the following branches :—

1. Biometry
2. Operations Research
3. Sampling Theory
4. Probability Theory
5. Statistical Inference
6. Design of Experiments.

(b) *One Reader in Statistics (U.G.C. Special Assistance Programme)*

Qualifications essential:

Specialization in *one* of the following branches:

1. Operations Research
2. Probability Theory
3. Statistical Inference
4. Design of Experiments
5. Sampling Theory
6. Industrial Statistics
7. Econometrics
8. Bio-Statistics
9. Biometry.

(c) *Five Lecturers in Statistics (of which one is in the U.G.C. Special Assistance-Programme)*

Qualifications essential:

Specialization in *one* of the following branches :

1. Operations Research
2. Probability Theory
3. Statistical Inference
4. Design of Experiments
5. Sampling theory
6. Biometry.

(d) *Two Demonstrators in Statistics*

Candidate should be M.A./M.Sc. Statistics with at least Second Class.

Scales of Pay

1.	Professor	Rs.	1100-50-1300-60-1600
2.	Reader	Rs.	700-50-1250
3.	Lecturer	Rs.	400-40-800-50-950
4.	Demonstrator	Rs.	300-20-400

Plus allowances as admissible under the Rules.

Age limit etc.

The upper age limit for appointments to the teaching posts under the University is ordinarily 45 years, but it is relaxable in in special cases.

The selected candidates for the posts of Professor, Reader and Lecturer will be on probation for a period of two years and will be required, on confirmation, to contribute to the University Provident Fund and to enter into an agreement of service with the University. They will also have to pass a test in Elementary Marathi, if Marathi is not their mother tongue.

Note :— Those who are employed must submit their application through the proper channel.

G.J. Abhyankar,
Offg. Registrar.

UNIVERSITY OF POONA

Applications are invited for the post of Professor of Applied Mathematics including Astronomy in the University Department of Mathematics and Statistics in the scale of Rs. 1100-50-1300-60-1600 inclusive of Dearness Allowance.

Applicants should possess the minimum qualifications prescribed by the University for recognition as a Post-Graduate teacher (by Research). Detailed information regarding these qualifications will be supplied along with the prescribed form of application. Those applying should preferably have experience of Post-Graduate teaching and Research of not less than ten years. Preference will be given to candidates who have to their credit published research work of recognised merit and/or who have successfully guided students for the Ph.D. degree. Candidates having exceptional qualifications and research experience may be given a higher starting salary within the scale.

The upper age limit for appointment to teaching posts under the University is ordinarily 45 years but it is relaxable in special cases.

The selected candidates will be on probation for a period of two years and will be required on confirmation to contribute to the University Provident Fund and to enter into an agreement for service with the University. They will also have to pass a test in Elementary Marathi, if Marathi is not their mother tongue.

Seven copies of each application in prescribed form, along with seven copies of testimonials and other enclosures such as published research papers, etc., if any, must reach the Registrar, University of Poona, within one month from the date of publication of the advertisement. Applicants are requested to mention clearly the names of the Senior Authors of their publications. The prescribed form of application can be had from the University Office either personally or by sending a self-addressed envelope (23 cm. x 10 cm.) bearing postal stamp of 50 N.Ps. to cover postage.

Note : Those who are employed must submit their application through the proper channel.

G.J. Abhyankar,
Offg. Registrar.

PUNJABI UNIVERSITY, PATIALA

(Advertisement No. 24/73)

Applications are invited for appointment to the following posts at the Punjabi University, Patiala:—

1. DEPARTMENT OF SRI GURU GRANTH SAHIB STUDIES

Reader (Rs. 700-50-1000/50-1250)

(a) At least a second class Master's degree in Language/religion/philosophy/social sciences or having doctoral degree in Sikh Scriptures or is a scholar of eminence in the field of Guru Granth Studies/Indian religious philosophy preferably with some recognised academic qualification involving specialised study of the Guru Granth Sahib from a Statutory University and having good published research work to his credit, on the subject.

(b) Persons should be well-versed in Punjabi, Hindi and English. Working knowledge of Sanskrit/Persian is desirable.

2. DEPARTMENT OF BUSINESS MANAGEMENT

Reader (Rs. 700-50-1000/50-1250) (To teach analytical methods for Business Decisions in various areas of Management).

(a) A first or second class Master's degree in Mathematics with specialisation in Statistics of an Indian University or an equivalent qualifications of a foreign University.

(b) Either a research degree of a Doctorate standard or published work of high standard, preferably in operations research.

(c) About 5 years experience of research or teaching postgraduate classes, preferably with M.B.A classes in this area, at a University or College.

3. DEPARTMENT OF LAW

Lecturers (2) (Rs. 400-40-800-EB-50-950)

(a) A first or second class Master's degree in Law of an Indian University or an equivalent qualification of a foreign University.

(b) At least two years teaching experience or five years practice at the bar.

(c) Persons with research qualification would be preferred.

4. U.G.C. JUNIOR RESEARCH FELLOWSHIPS (Rs. 300/- p.m. fixed)

(One each in the Departments of Sociology and Social anthropology, political Science and Public Administration)

Tenable for a Period of Three (3) Years

At least a second class Master's degree in the portinent subjects viz. Sociology/Anthropology, Political Science and Public Administration, with one year's teaching/research experience after obtaining Master's degree, provided that the condition of experience may be relaxed in the case of first class M.A.'s. Provided further the candidates with at least 55% marks both in B.A. and M.A. would also be considered in case no first class M.A. is available.

5. DEPARTMENT OF POLITICAL SCIENCE

Instructor (one) (Rs. 350-25-400-EB-30-640-40-800)

At least a second class Master's degree in Political Science of an Indian University or an equivalent qualification of a foreign University, preferably with some teaching/research experience.

EVENING INSTITUTE OF POSTGADUATE STUDIES

Lecturer (one) (Rs. 400-40-800-EB-50-950)

A first or second class Master's degree in Public Administration (with Economics background) of an Indian University or an equivalent qualification of a foreign University with atleast one year's teaching or research experience in the case of first class M.A.'s and atleast three years teaching or research experience or having some research work to one's credit in the case of second class M.A.'s.

DEPARTMENT OF PANJAB HISTORICAL STUDIES

Research Assistant (Rs. 300-25-350-EB-400-30-610-EB-30-640-40-800)

At least a high second class Master's degree in History with working knowledge of Punjabi. Preference will be given to those with proficiency in Urdu/Persian.

GENERAL *For All* (Except Sr. No. 3)

Qualifications and experience are relaxable in the case of candidates, otherwise found suitable for the post by the Selection Committee. Higher start within the grade admissible depending upon the ability and experience of the candidates.

House rent and Dearness allowances, Provident Fund and Medical facilities, according to University rules.

Applications, complete in all respects, on the prescribed forms obtainable on request from the Deputy Registrar (Admn.) by sending a self addressed envelope of the size of 23 x 10 cms. stamped with 20 paise postage, should reach the University by 25.9.1973, at the latest. Incomplete applications not accompanied with attested copies of the certificates and testimonials shall not be entertained. Separate application form should be submitted for each post.

Persons already in service should apply through proper channel. Government servants who are not in a position to submit their applications through proper channel before the due date should submit an advance copy before date and regular application through proper channel by 29.9.73.

REGISTRAR.

ALIGARH MUSLIM UNIVERSITY

Advertisement No. 8/73-74

APPLICATIONS are invited on the prescribed form for the following posts :—

Candidates must possess medical qualification included in 1st or 2nd Schedule or Part II of the Third Schedule (other than Licentiate qualifications) of the Indian Medical Council Act, 1956. Holders of educational qualifications included in Part II of the Third Schedule should fulfil the conditions stipulated in Section 13(3) of the IMC Act, 1656. Must possess a basic University or equivalent qualification entered in schedules under State/Central Medical Registration Act (for posts at Sl. Nos. 1 to 3 only).

1. Reader in Surgery (Urology) (post temporary). Scale: Rs. 700-50-1250 plus allowances.

Qualifications :— MS, FRCS, Speciality Board of Surgery (USA) or an equivalent qualification in the subject. As Registrar or an equivalent post in Surgery or allied clinical departments for at least three years in Teaching Institution.

Desirable:—Preference will be given to those candidates who have worked as Lecturer and have teaching and clinical experience in a speciality of general surgery.

2. Reader in Obstetrics and Gynaecology (temporary but likely to become permanent). Scale of Rs. 700-50-1250 plus allowances.

Qualification: MD (Obst. & Gynae.), MS (Obst. & Gynae.), MO, MRCOG, Speciality Board of Obst. & Gynae. (USA), MS, MD (Med.), MRCP, FRCS with DGO, FRCS/MRCP (with Obst. & Gynae. as a special subject) or an equivalent qualification. As Registrar or an equivalent post in Obst. & Gynae. or allied clinical department for at least three years in a Teaching Institution.

3. Lecturer in surgery (Cardio-Thoracic Surgery). Scale: Rs. 400-40-800-50-950 plus allowances.

Qualifications: MS/FRCS/FRFPS(s) Glasgow (Cardio-Thoracic Surgery) or equivalent in surgery with two years' special training in Cardio-Thoracic Surgery of speciality Board (USA) in Cardio-Thoracic surgery. Experience as Registrar or equivalent post for at least three years in Cardio-Thoracic Surgery in a Teaching institution.

Desirable:—Research experience. Published paper.

4. Reader in Botany (Botany Department) (temporary) in the scale of Rs. 700-50-1250 plus allowances. Qualifications ordinarily required:—A first or high second class Master's degree in Botany of an Indian University or an equivalent foreign qualification. A Research degree of doctorate standard or published work of high standard, and at least five years' experience of teaching postgraduate classes and some experience of guiding research.

5. Lecturers in Business Management in the scale of 400-40-800-50-950 plus allowances.

Qualifications ordinarily required :— A first or high second class Master's degree in Commerce or MBA or DBM of an Indian University or an equivalent foreign qualification.

Desirable :— Published work and some experience of teaching or Research or practical experience of office or firm.

6. Lecturer in Physics (Women's College) in the scale of Rs. 400-40-800-50-950 plus allowances.

Qualifications ordinarily required :— A first or high second class Master's degree in Physics of an Indian University or an equivalent foreign qualification.

7. Lecturers in Physics (Department of Physics) in the scale of Rs. 400-40-800-50-950 plus allowances.

Qualifications ordinarily required :— At least a first or high second class Master's degree in Physics or equivalent foreign qualification.

Desirable :— Specialisation in one of the areas: Theoretical Nuclear Physics, Experimental Nuclear Physics or Solid State Physics.

8. Lecturer in Hindi (Women's College) in the scale of Rs. 400-40-800-50-950 plus allowances.

Qualifications ordinarily required :— At least a first or high second class Master's degree in Hindi or equivalent foreign qualification.

Desirable :— Research degree or publications of standard. Experience of teaching degree classes.

Prescribed application form and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope of 9"x4". Last date for receipt of applications is 30th September, 1973. Incomplete applications and those received late may not be considered.

Higher start may be given for special qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second class Raliway Fare only.

P.V. George,
Registrar.

Issued by Public Relations Officer.

63347

अर्हताय :

(अ) स्नातकोत्तर उपाधि प्रथम श्रेणी में, या

(ब) सम्बन्धित विषय में डाक्टर ऑफ फिलास्फी उपाधि के साथ उच्च द्वितीय श्रेणी

प्त अध्यापन एवं शोध कार्य में व रखने वाले अभ्यर्थी को वरीयता जायेगी।

उपर्युक्त दशाओं में चयन समिति द्वारा अध्यापन तथा उच्च स्तर के शोध कार्य के आधार पर उपर्युक्त अर्हताओं के संबंध में शिथिलता बरती जा सकती है।

अभ्यर्थी को साक्षात्कार के लिए बुलाये जाने पर मार्ग व्यय स्वयं वहन करना पड़ेगा। विज्ञापित पद के निमित्त विशेष योग्यता रखने वाले अभ्यर्थी को चयन समिति अग्रिम बढ़ोत्तरी देकर प्रारम्भिक वेतन दे सकती है। विज्ञापित पद पर नियुक्त करने या न करने के लिए विश्वविद्यालय प्राधिकृत है। अभ्यर्थी द्वारा या अभ्यर्थी की ओर से किसी प्रकार की सिफारिश का किया जाना उसकी अयोग्यता का सूचक माना जायेगा।

भोलेन्द्रसिंह
कुलसचिव

LETTER TO THE EDITOR

Open University

An academic illusion

"*I have read with due attention* Amrik Singh's *Open University* published in the University News, August 1973. It was a sobering experience to know that the *Open University* was not a magic wand to cure all ills of higher education in India. There is a role of the mass media in the success of the *Open University* but, at bottom, *it involves* correspondence education. Unless the quality of correspondence is improved, the mere nomenclature of the *Open University is not going to work a* miracle. It is not a panacea for all ills.

It is a pity that correspondence education has been used as the milch cow of Indian education. Since it caters to the needs of academically handicapped students who fail to get admission to colleges, low priority has been given to the improvement of correspondence education. As long as a few institutions for the elite are maintained, why bother to improve the quality of correspondence education *which is primarily* higher(?) education for the handicapped sub-elite? On the one hand, we have elite institutions like Jawaharlal Nehru University liberally financed from the tax-payer's contribution and on the other hand we have correspondence education that has been given stepmotherly treatment as far as the allocation of public funds is concerned.

During the Fifth Five Year Plan attention will have to be given to the *consolidation and improvement* of correspondence education student's involvement has some correlation with the quality and effectiveness of the lessons prepared and the thoroughness with which response sheets are corrected. Before the *Open University* is tried on a massive scale, it would be necessary to reorient the teachers and *impart them* sufficient skill in programmed learning. Unless we have a band of dedicated teachers, the *Open University* would remain an academic illusion. Let me emphasise we require teachers and not mere lecturers—teachers who are prepared to take pains in imparting education to academically handicapped students."

Dr. N.P. Singh,
Rajdhani College,
University of Delhi,
Kirti Nagar,
New Delhi-15.

INDIAN SCHOOL OF MINES
DHANBAD-826004
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(A. Subramanian)
Registrar

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UNIVERSITY NEWS, September, 1973 Regd. No. R. N. 7180/63 Postal Regd. No. D—253

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ज्योतिर्गमय
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Opinions expressed in the articles and reviews are individual and do not necessarily reflect the policies of the Board.

Editor : Anjni Kumar

Shanti Swarup Bhatnagar Awards

The *Shanti Swarup Bhatnagar* Memorial Award for Scientific Research was instituted in 1957 in the memory of late Dr. Shanti Swarup Bhatnagar, who was the first Director-General of the Council of Scientific & Industrial Research. The award has been instituted by the Council of Scientific and Industrial Research to create incentive for research workers in India and to recognize outstanding scientific work. The award is made each year for outstanding contribution in science, including engineering and technology. Five prizes each of the value of Rs. 10,000/- in the following disciplines are awarded annually for notable and original research, applied or fundamental : Physical Sciences; Chemical Sciences; Biological Sciences; Engineering; Medical Sciences; Mathematical Sciences; and other sciences.

The 1971 awardees are: **Physical Sciences**—Dr. P.K. Iyengar, Head, Nuclear Physics Division, Bhabha Atomic Research Centre, Bombay; **Chemical Sciences**—Dr. M. M. Dhar, Scientist, Central Drug Research Institute, Lucknow; **Medical Sciences**—Dr. A.K. Maiti, Reader in Physiology & Head of the Department of Biochemistry & Biophysics, University College of Medicine, University of Calcutta, and Dr. O.D. Gulati, Professor of Pharmacology, Medical College, Baroda; **Biological Sciences**—Prof. M. S. Kanungo, Prof. of Zoology, Banaras Hindu University, and Prof. N. Balakrishnan Nair, Prof. of Marine Biology & Fisheries and Head, Deptt. of Aquatic Biology & Fisheries, University of Kerala; **Engineering Sciences**—Dr. A. Bhattacharyya, Prof. of Mechanical Engineering, Jadavpur University.

For 1970, awards have been made for **Chemical Sciences** to Dr. P.T. Narasimhan, Prof. of Chemistry, Indian Institute of Technology, Kanpur and for **Medical Sciences** to Dr. J.R. Talwar Assistant Professor, Cardiothoracic Surgery, All-India Institute of Medical Sciences, New Delhi.

UNIVERSITY MANAGEMENT

D. C. PAVATE

Universities in India are financially supported by two agencies: the State Government directly, and the Government of India through the University Grants Commission and broadly speaking, the object of both the governments is that the trained intellect of our young men and women should enable them not only to hold important positions under government and public concerns but in various fields which contribute to the prosperity of the country. The University Grants Commission exercises no control over any university except to suggest some reforms in purely academic matters, although it pays enormous amount of money.

No nation can flourish without maintaining high standards of university education and encouraging research on a large scale. A modern university tries not only to keep itself abreast of modern developments but to encourage original thinking so as to contribute its mite to the growing knowledge in various fields. To that end, all civilised countries have been making steadily increasing provision for primary, secondary and university education. In all countries, primary and secondary education are under the direct control of the Government, but university education is either under autonomous bodies or under direct government control.

In USA, universities are either state-managed or private concerns. The best universities in America, however, are those managed by private bodies with no subsidy from the state or the central government. A few years back, there was some interference by the state government of California in the affairs of Berkley University; but it led to a terrific amount of trouble and the state government had to give up its position. In England, universities are maintained as autonomous bodies, now with substantial grants from the Education Department, while European universities are managed as government institutions. In all these countries, however, one thing is common and that is, there is no interference from their governments at any stage, as far as the normal administration of the university departments is concerned. The Vice-Chancellor or the Rector carries on the administration leaving the faculty members free to carry on their work. They have to produce good results not only in the examinations but also in original contribution to knowledge. Since governments have several worries of their own, they do not take upon themselves the additional responsibility of day-to-day university administration. I remember, about 15 years back, I visited the Paris University which is run by the Government of France. I asked the Rector whether the Minister ever interfered in the day-to-day administration. He looked at me with surprise and said, "No, If he does, I shall appeal to the President." Whether in Russia, Germany or France, universities are entirely administered by their governments and their standards of teaching or research are exceptionally high; but there is not the slightest evidence of government interference in academic matters.

In our country, government control means interference in admissions, appointment of teachers, examiners and even in examination results. This is the experience of most of the Vice-Chancellors in India. The Vice-Chancellor of Delhi is not alone in attributing the decline of his university to the "doings of politicians." In this context, let us see some features of the new Universities Bill proposed to be introduced shortly in the Mysore Assembly.

The State Chief Minister has been recently reported to have justified the Bill under which the Vice-Chancellor is to be a subordinate officer of the Education Minister for all intents and purposes. On July 20, he was addressing the plenary session of the two-day seminar on the Mysore Universities Bill when he expressed some very controversial views on university education. He is reported to have said that his government was "interested in the overall control, supervision and power to give directions and above all, maintain the principle of accountability of the university to the State, which is the Master by giving funds.". He is also reported to have said that "in matters of finance, utility and even education policy, perhaps the legislature should have powers to interfere from time to time".

If this is his idea, he had better take over the entire control of university administration and run the university as a secondary school. Where is the necessity of all these Acts, Senates, Academic Councils and the Syndicates? If the present government takes over the entire administration, it will make for simplicity and the public will know exactly who is responsible for the governance of the universities.

The proposed scheme is neither here nor there. The universities are either autonomous in administration or they are not; what the Mysore Government wants to do, however, is to call the universities autonomous and to get done whatever is necessary for its political ends from behind the scene and pass on the blame for the resulting sins of omission and commission to the university authorities. The Mysore Government does not seem to realise what great harm it will do to its own reputation and safety; for, if admissions or appointments are not made on merit, the aggrieved party will file a writ petition against the university which will naturally plead that the Government is responsible for them. If a weak professor is appointed, there will be trouble from the students.

The point made by Mr Urs that the State Government is "the master by giving funds" is also an intriguing one. Under democracy, it is not an individual, however high and mighty he may be, but the electrorate which is the master. By giving grants-in-aid to

(*Continued on page 9*)

LEARNING THROUGH POST

K. Madhava Menon

Our country is working towards ushering in a socialistic pattern of society. The expression 'socialistic pattern' has come to mean several things. To those who are in the field of education it means education for all, education that is free as far as the country can afford it and also education for those who want it and for those who are in need of it but at the same time who are in a position to pay for it. Education ideally is a continual process that starts from birth and goes on till the end. But conventional institutionalized education under the control and guidance of the state has remained a boon for only those who have the time and willingness to attend an institution run for the purpose. Those who are forced to discontinue their studies for several reasons have to remain semi-literates or partially uneducated for want of alternate facilities to continue their education. A country that is pledged to the welfare of all its citizens has to give priority to the educational aspirations of millions of its semi-literates much the same way as it is concerned with the education of crores of its illiterates. Even in the case of the so-called educated, it is important that they are given further facilities to validate their degrees and diplomas periodically making them fit to shoulder their responsibilities in tune with the changing needs of the times. The concept of continuing education which has gained acceptance in all advanced countries, gains in importance when we consider the magnitude of the problem of education in our country.

The Central and State Governments, the Planning Commission and the Universities have come to realize the importance of providing facilities for continuing education to the half-baked literates and drop-outs whose number is legion. The role of universities in this vital area of nation-building cannot be over-emphasized. It is time every university in the country made an assessment of its resources and charted out plans for taking education to those who cannot come to its portals. We shall now make a quick look, at this aspect of higher education and see how far it is practicable, and if practicable what the beneficial effects it has on society.

The Calicut University which came into being in 1968 has sixtyfive affiliated colleges run by governmental and private agencies. The Director of Public Instruction has stated that 1,90,000 pupils have written the just concluded S.S.L.C. examination in the state. Judging from past experience it may be surmised that between 70,000 to 80,000 might come out successful and a large percentage of this would certainly go to colleges seeking admission to the Pre-degree course. And how about those who pass the pre-degree course this year? Are they all going to get admission to the courses of their choice? Can the existing colleges accommodate all of them? Even if they can how many can afford an expensive college education? I know for certain that there are many who are not rich enough to send their college-going children to distant places for their education. At the same time it should be realized that a desire to get university education is strongly felt by all sections of the society. Looking at the problem from this point of view, one is forced to think of the desirability of providing facilities for those unfortunate young people to continue their education without straining the meagre resources of their parents and without hindrance to their finding and working at what jobs they can lay their hands on. It is as a result of this line of thinking that the Calicut University has decided to allow private appearance in non-science subjects for all undergraduates courses. Now students can appear privately for the Pre-degree, B.A. and B. Com. examination of the Calicut University. But granting permissions to sit for examinations is not enough. How can a private candidate prepare for a university examination if he is not given proper guidance and study aids? Obviously he relies heavily on sub-standard bazaar notes and private teaching shops that have sprung up in strength in every nook and corner of the state. This is sure to lead to a deplorable fall in the academic standards of private candidates. One of the urgent tasks of the university is to see if it can devise some means by which these candidates can be helped to achieve a reasonably high level of academic standard. One sure means of ensuring this is to start correspondence courses for the benefit of non-collegiate students. Correspondence courses are conducted through post. The following universities in India

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The author is the Pro-Vice-Chancellor of Calicut University have already organised correspondence courses in the courses listed against them.

University	Courses
1. Delhi	B.A. (Pass) B.Sc. (General) B.Com (Pass) group A
2. Rajasthan	B.Com (Pass)
3. Punjabi	P.U.C., B.A.
4. Mysore	P.U.C., B.A., M.A.
5. Meerut	B.A.
6. Madurai	B.A.
7. Bombay	I.A., I. Com.
8. Panjab	P.U.C.
9. Andhra	B.A., B. Com.
10. Himachal Pradesh	P.U.C., B.A., M.A. B.ED., M.Ed.
11. Sri Venkateswara	B.A.

These universities have separate directorates for the efficient conduct of the correspondence courses. Delhi University has an examination centre in Trivandrum for its various courses. If all the universities conducting correspondence courses have centres in state capitals, it would be a great help to the candidates.

How good are these correspondence courses? Do they help the private candidates in any way? First, it relieves the pressure on admissions to colleges and the students can study at home. Secondly, correspondence courses do not come in the way of one's getting employed. Thirdly, it is inexpensive and convenient to study through correspondence courses. Delhi University has computed that while it costs the exchequer Rs. 700/- to coach up a student in a regular collegiate programme it costs only Rs. 200/- to offer instruction through post. Fourthly, correspondence course students get the benefit of notes and study aids prepared by competent and experienced teachers who work round the clock. This obviates the unwholesome trends that raise their heads in colleges when teachers get transferred and no replacement is given within a reasonable period of time. An important and far-reaching consequence of a well-organized and efficiently run correspondence course is that it will reduce the pressure on existing colleges. This idea, if put into practice, may well turn out to be a nightmare to those institutions which have come up overnight owing to various pressures and still lacking in facilities and qualified personnel. It will certainly reduce public spending on collegiate education which will become more purposeful and highly motivated since it is voluntary. If conducted well the programme would be free from student strikes and the like. These are some of the benefits of correspondence courses.

The viability of such courses in advanced countries has been attested to by the experience of countries like the United States, Japan, Sweden, USSR, Australia and several others. Britain has joined in this movement in a big way and she has established the world's first open university to promote the cause of continuing education. The Education Commission of India (1964-1966) has also recorded its approval of correspondence courses. It is reported that in Soviet Russia more than 40% of its people educate themselves through correspondence courses. In September 1972, the Central Ministry of Education convened a meeting of Education Secretaries and Directors of Public Instruction from the states to discuss the problems arising out of overcrowding in colleges. This conference had decided to reduce pressure on existing colleges, and expressed itself in favour of instituting correspondence courses.

Our schools and colleges impart instruction only during day time. These institutions could be made more serviceable if some of them could be equipped with better libraries and kept open till 10 P.M. Non-collegiate candidates could make use of the facilities if such institutions thus helping them get access to original sources of information and develop interest in reading on their own. This will go a long way in improving the quality of the end products of correspondence courses. With generous grants from the Central Government and the University Grants Commission it should be possible for our universities to plan and establish such evening libraries in selected centres of the states, thus taking educational tools to those who would come forward voluntarily to make use of them.

Universities may find it rather difficult to organize correspondence courses as it is a compartively new venture, quite different from its routine activities. But difficulties are certainly not insurmountable. A well-planned, efficiently conducted correspondence course will not only impair academic standards but it will, on the other hand, act at a check on the erosion of standards through keeping a vigil on student performance and subjecting its methods and study aids to constant review and revision. This has been the view expressed by panel of experts appointed in 1961 to go into the details of this system. The Directorates of correspondence courses of the Delhi University has by now become a self-reliant institution and its courses have been attracting students from all over the country. The effectiveness of correspondence courses could be increased by organizing periodic 'contact sessions' in selected centres at which the members of the faculty can meet the students to discuss their problems. Extension lectures and instruction in difficult subjects can also be organized at such centres, thereby making the whole thing a well-rounded scheme of education. Such contact sessions would go a long way in bridging the gap in communication between the teacher and the taught. This may also help subjecting the materials sent to the students to periodic revisions after ascertaining student response.

The country's march forwards, socialism could be, hastened by narrowing the difference between the haves and the have-nots, not only in the economic and social scenes but also in the field of education. It is high time that our universities start organizing correspondence courses, evening classes, private appearance at examinations and incorporate the welcome features of open university instruction in their curriculum. □

ICAR's Guidelines for New Universities

While the setting up of a new agricultural university is a power vested with the State Governments, the Central agencies like UGC and ICAR have the responsibility for coordination, promotion and maintenance of standards. To perform this essential and constitutional responsibility, the ICAR has developed the following norms and guidelines in respect of new universities to be established in the country in the field of agricultural sciences.

The concept of an agricultural university is based on certain principles such as (a) it has to be an important instrument of service to the people in the area to which the university caters, and (b) it has to be an integrated mechanism of service in the sphere of resident teaching, research and extension education of the farming and rural communities.

The need for new agricultural universities has necessarily to be examined from an all-India angle rather than of the narrow requirements of a State or a region within a State. Vast resources have already been expanded without adequate consideration to this important concept.

Although constraint in resources affects some universities more than others, the fact remains that during the past thirteen years after the first agricultural university was started towards the end of 1960, even the physical facilities necessary for the normal operation of an agricultural university with its full complement of institutions such as (i) College of Basic Sciences and Humanities (ii) College of Agriculture (iii) College of Veterinary Animal Sciences (iv) College of Agricultural Engineering and (v) College of Home Science have not yet been fully provided in most of the universities. The over-riding need at the present moment therefore is to make these existing 20 universities fully functional and effective. This calls for the urgent consideration of the Central and State Governments.

Equally important is the consideration whether there is sufficient trained manpower available for the setting up of new agricultural universities.

Norms and Standards

There are 19 agricultural universities functioning today excluding IARI which is a deemed university. The State of Jammu and Kashmir is proposing to establish one shortly. Experience has shown that almost every university suffers from one major constraint of inadequate resources of funds and trained persons at certain levels.

Physical facilities are equally important and could be a very serious restraint. The time required for land acquisition, and procedural delays involved in getting buildings ready and obtaining equipment is enormous. Normally not less than four to five years are required to set up a new institution, and perhaps not less than two to three years to develop a university around an existing campus. This important time factor has to be borne in mind before a proposal is cleared for setting up of new universities.

From the national point of view, however, a matter of greater concern is whether a new university could be justified according to trained manpower requirements of the country and whether the proliferation of the universities would lead to higher standards or not and would be in the interests of the country. It is for the ICAR to decide after a very careful study of the trained manpower requirements of the country, both from the State and national angle, as to whether there is justification for setting up a university in a particular area or State and whether it will accentuate or alleviate the unemployment position. This excersise must be gone through with all possible care before the clearance is given for a new university.

Another important measure that concerns the Centre is the balancing of requirements of the regions within the country. In the past one of the justifications made to set up a new university was to cater to a special area. It is difficult to justify a university within each agro-climatic zone in India. Similarly, one college of fishery science or forestry science may be adequate to meet the needs of more than one State. Unless such an approach is adopted, the meagre resources cannot be meaningfully employed and waste of resources prevented. A careful analysis of the regional needs of the country is therefore necessary.

Visiting teams

In the foregoing list have been included some of the major factors that have to be taken into consideration before preliminary clearance of the proposal for the establishment of new agricultural universities is given. Before the final clearance is given, a very high—level visiting team comprising of persons thoroughly conversant with the philosophy and operational needs of the agricultural university, should make an on-the-spot inspection, in order to see that the entire needs of the proposed university, from the point of trained manpower, physical facilities, academic needs, etc. are met along with the administrative requirements for the smooth and efficient functioning of the university. It is not necessary that there should be complete uniformity in the Acts and Statutes throughout the country. What is important is to look into the provisions of the Acts and Statutes to determine if they are designed for the maintenance of standards. It is only when the visiting team report makes unequivocal recommendation in all these matters that there can be justification for permitting a new university to be set up in the country. ●

BANKING

IN

UNIVERSITIES

S. NAKKIRAN

After the nationalisation of the major banks vast changes are taking place at a fast speed in the field of Banking. The commercial banks have committed their activities for certain well-laid social objectives. Under this circumstance an awareness to study banking as a special subject is gaining currency. Today's youth prefer to get through a bank job than any other government or private jobs. Many colleges and universities are giving special emphasis for banking education. The Banking Commission says, "With the increase in the number of universities, colleges and commercial schools, banking education which is a branch of higher commercial education is slowly spreading. Correspondingly, the number of students reading for either a diploma or a degree in commercial subjects including banking has been steadily increasing. In fact the number of B.Com. students has been increasing at a much faster rate than the number of students for the B.A. degree. In most of the Universities, Banking and Currency is a popular elective group for the Master's degree students in Economics."

Degrees Exclusively for Banking

At present a need has arisen to create special chairs and new syllabuses for banking in universities and colleges. Because the present degree and postgraduate courses did not provide full scope for the study of Banking. Banking is offered either as an optional subject or as a paper in almost all courses. So a case has been raised to introduce new degree and postgraduate courses on banking.

After the nationalisation of the major banks the banking sector is growing by leaps and bounds. Vast branch expansion warrants the need to create specially trained personnel to manage the rural oriented banking. Further banks have oriented their lending policies towards the cause of the weaker sections of the community. Thus the new branch banking policies, new lending policies etc., may lead to certain problems which can be studied by the University Teachers and Students. A new banking education can solely devote its efforts to study the banking problems and to find a new solution for them. Thirdly, banking has become a dynamic sector. We must be prepared to face tomorrow's problems. The best way is to prepare the coming generation by fully acquainting themselves with the subject of Banking. This ensures to provide opportunities by introducing a new academic course on Banking.

The Banking Institutions like the National Institute of Bank Management, the Indian Institute of Bankers etc. are giving only training for the persons who are already selected for the job. But they are not awarding any degree on banking or admitting fresh students who had completed their post-matric or degree courses. So to fill up the gap that is existing in the academic field special chairs on Banking in the universities and colleges can be created.

The author is the Head, Department of Cooperation, College of Rural Higher Education, Coimbatore.

Syllabus for Banking

At the beginning, Master's Degree on Banking may be introduced. For this course students who have completed their B.Com or B.A. (Econ) or B.A. (Coop) or B.Sc. (Agri) can be admitted. The following papers are recommended for the proposed M.A. (Banking): (1) Banking: Theory & Practice, (2) Research Methodology and Statistics, (3) Agricultural and Industrial Economics, (4) Cooperative Banking, (5) Accountancy and Auditing, (6) Lending Procedures, (7) Management techniques in Banking, and (8) Thesis, and Practical Training.

The special feature of the course would be the practical training and the thesis. The students must visit the commercial cooperative and industrial banks to study the actual operations physically. Every student must be asked to study a problem relating to Banking and must submit a thesis. Subjects like Agricultural and Industrial Economics, Cooperative Banking, Accountancy and Management are included to give a background about the banking field. The Banking Commission has rightly pointed out, "Banking, although a specialised field, is interdisciplinary in its approach involving, besides the principles and techniques of banking, the study of different subjects such as accounting and book-keeping, economics, law and management."

Coordination between the Banks and Universities

In order to make the banking course popular close coordination must be created between the nationlised Banks and the Universities. Long back the Central Banking Enquiry Committee had pointed out that, "close coordination of effort is essential on the part of the universities, the banks and the institutions engaged in imparting or promoting banking education; (1) to make the courses practical; (2) to provide for practical training, and (3) to arrange for the employment of trained youths in the Banks". This statement holds good even for today's atmosphere. The Nationalised Banks can sponsor chairs in Banking in Universities. Banking Commission has given wide suggestions regarding this matter.

The professor who holds the chair on Banking sponsored by the Banks, must strengthen the academic part and the Research Part. Research on banking must also be given equal importance. The areas for Research on Banking had also been noted by the Banking Commission. They include the study on the effects of bank finance on various sectors to discover the ways of popularising banking habits; scope for mobilisation of deposits, and reducing the banking costs. Local Universities in their own area can do the Research activities better than the few national level Banking Institutions. ●

(Continued from page 4)

institutions doing great service to the nation, the Minister of Education or the State Government does not become their "master". Winston Churchill used to say "I am but a servant of the Parliament" and the members of Parliament are but the servants of their constituencies, as far as public interests are concerned. No government calls itself "master" of this or that. Its function is to serve people, not by helping one against another, but by looking after the public interests.

In regard to "accountability" every university has to produce an annual report on its various activities and the progress made by the different departments during the year. The Vice-Chancellor places it before the budget meeting of the Senate every year and the Senate members of the university including representatives of the Government, often criticise the university officers very much in the same way as the State Assembly and Council do. Regarding financial transactions, there is the Audit which examines them every year and its report has to be placed before the Senate. The Governor of the State does exercise some control over universities of his State even in administration. This has been deliberately provided, as he does not function as a party man. Assuredly the State Government will be putting its hand in a hornets' nest, if it persists in its design. ●

PRIVATE VIEW
No New Universities in Fifth Plan
Better a Plan holiday than close them indefinitely later

Courtesy—Indian Express

WHAT IS WRONG WITH THE INDIAN WRESTLING?

BHAL BHAGWAT

INDIA has probably the longest tradition in wrestling than any other country of the world. She has produced great wrestlers like Gama—the Rustam-E-Zaman, Ghulam, Imam Bux, Karim Bux and so on. India has been participating in various international contests since 1899 and since independence there's hardly any Olympic in which she has not fielded her strongmen. We have participated in several international contests of world standard since 1947; but except Helsinki (1952) Olympics and Yakohama (1961) world championships this sub-continent, despite her longest traditions has failed to achieve any medal.

Where has the glorious era of our matmen gone? Though we are progressing, the speed of our progress is very slow. The world is advancing fast and we cannot afford to linger behind. We must catch up with the fast moving world. Should we be content with our present achievements? No doubt India has won several medals in other international events; but can 'winning of a medal' be said as a sign of real progress?...Not always! To assess the progress the 'expected performance' and the 'actual performance' should be compared. Some times medals are won due to favourable draws or lack of competition. Usually it happens in Commonwealth championships. Wrestling standard of commonwealth countries is not that high and therefore winning medals in such competitions cannot be considered as a big achievement.

Need For Analysis

Open any page of any of our articles on this subject, and there we find nothing than the same praise of old Gama and Ghulam. No doubt that they were giants of the wrestling arenas but our present shortcomings should not be covered under the echo of some victories in ordinary competitions. Many a time entirely wrong picture is put forward concealing the facts. But now the time has come to analyse boldly our weaknesses.

Our lower categories have put up better performance on quite a number of occasions. This is mainly due to their speed work. Their bouts are more spetacular than those of heavier categories. The review of world level competition shows us that India could win places only in lower categories. Our heavy matmen are strong enough but lack in essential motor qualities such as speed, special endurance, explosive power, force endurance and ability which are required for correct and effective application of technique. Our faulty method of physical exercise and diet do not give us the desired effect. They are unable to perform certain holds which require tremendous explosive power and flexibility. Our old method of exercise gives enough strength but diminishes explosive force and speed endurance. Scientifically and systematically planned training with the help of good sports physicians would certainly help to improve the performance level of our young budding wrestlers.

Coaching Camps

Generally, only one camp of three to four weeks' (sometimes of six weeks) duration is held in order to give final touches to our matmen before they leave Indian shores. We need more such camps, preferably two to three, with competent coaches. Sometimes the training is hampered because of lack of facilities at the training centre. Leading countries train their grapplers intensively in 15 to 18 training units per week. Our wrestlers too should be trained along these lines to improve their tolerance ability. Only systematically increased higher load would adapt our wrestlers to stand the increasing level of acidity in the working muscles. During such camps competent doctors should be appointed not only to treat the injuries but also to measure the BE(Base Excess) and PH value of their blood. This would enable the coaches to adjust the dosage of load.

The selection trials if held strictly under the competition rules including 'weighting-in', not only the headache of coach would be reduced but the selectors too would not find it difficult to assess the exact performance. Selectors are very seldom found to be strict on this point of showing correct weight. They have the impression that the wrestlers who are over weight 5 to 6 kgs. will be able to come down under the limit before they board the plane. But none thinks of adverse effect on the wrestlers' performance capacity when they reduce the body weight suddenly. Not only it affects the physical capacities but has also adversely psychological effects. And this is most important if one has to score a shoulder victory. Sudden check on intake of food and fluid gives mental depression. Such wrestlers are not eager to win.

Criteria For Selection

The criteria of inviting players for coaching camps and selection trials should be fixed and strictly adhered to. Only selected few who have made their presence felt during last national championship alongwith some real promising wrestlers who were genuinly unable to attend previous national championships may only be permitted to attend the camps and selection trials. The growing tendency of throwing challenge should be discouraged. Some renowned wrestlers follow this path without attending coaching camps. Discipline must be maintained amongst the campers and the authorities should strictly adhere to this principle.

Conditions of coaching camps should be exceptionally good. Accommodation and food standards should not be inferior to that of the competition place. Inferior diet tempts team members to

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The author is a coach at the NIS, Patiala consume food without control during competitions. Wrestlers should not be taken at the fault. They also may get accustomed to the new type of food preparation. The venues of camps should be selected taking into consideration the availability of facilities and the climatic conditions of the venue of the competition.

In some States still *ELECTION* rather than *SELECTION* of wrestling teams takes place. They do not have selection trials or competitions despite Federation's strict warnings. Improvement cannot be expected if Associations and Federations do not go hand in hand.

Role of Officials

Not only our wrestlers' standard should be improved but our officials too have much scope to improve their ability to take decisions. This is of utmost importance to see that only meritted wrestlers come up which is impossible if the officiating standard is of a high order in the true sense. Latest rules possible with necessary examples and explanations if needed should be circulated all over the country from time to time and without any delay and should be made available in the market in both English and Hindi, at nominal charges. Clinics should be arranged for all officials, old as well as new, not only during the nationals but twice a year in all States simultaneously. Such clinics should be of two weeks' duration and practical as well as theory tests should be kept at the end before they are finally graded. Promising referees may be upgraded on purely merit basis. Those who do not show progress may be reverted to lower grades. The examination and licence fees should be reduced to minimum.

Special Responsibility of Federation

Our Federation can easily publish quarterly bulletins which should contain articles on wrestling techniques, discussions on wrsetling rules, information and reports on coaching camps and all major competitions including results and action pictures of national and international championships, some write-ups on well known wrestlers of India as well as of the world, their method of training and actual diet alongwith favourite technique and their special way of application of such holds and so on. It may also include the detailed competition programme for the whole year (sports calendar). Some interesting topics such as information on systematic weight reduction and weight control, various training methods, some researches in the field of wrestling etc. may also be covered. This would be possible by establishing good contacts and relations with various sports Federations and institutions in the world.

Facilities And Equipment

It is said that there's no dearth of talent in the country, but unfortunately no efforts are being made in proper direction. This campaign will not be successful unless more frequent competitions for juniors are arranged at all levels. Federation can take a lead in this matter. Follow-up training programme must be chalked out State-wise in consultation with the National, State/Zonal coaches which are appointed by the National Federation.

At present the country has no more than 60 standard wrestling mats. Considering the ratio of 60 to 600 million people (approximately), only one mat comes for 10 million people. Shortage of sports equipment could be minimized to certain extent if the WFI, Government and State Associations work together with close cooperation. This could easily be arranged if the amount of royalty money charged for organising national championships is reduced to minimum. Instead, the organising States may be compelled to prepare two standard wrestling mats for the use of their own States. Some countries like Iran instead of taxing the State Organisers, donate two standard wrestling mats along with one or two qualified coaches to train their wrestlers. Salaries of such coaches are paid by the Iranian Federation. Indian Federation need not worry about the payment of coaches since Asia's biggest and the only sports institution—Netaji Subhas National Institute of Sports of Patiala—will be able to meet their demand.

Wrestling costumes, shoes etc. may also be made available to our people at fair prices. It's surprising that this equipment is not easily available in the market. In leading countries like Japan, the Soviet Union, Bulgaria, Yugoslavia, the United States of America as well as Germany, Poland and Iran such essential equipment is easily accessible in the market even for children.

Few Suggestions

To run all this smoothly, funds are needed. Along with other sources nominal sports tax of one paisa on each cinema ticket, horse races and liquors etc. may be levied in permanent form throughout the year instead of only Olympic years. The collection may be spent on the National Federations, building of in-door and open-air stadium errecting gymnasia and sending teams abroad. Players should not be burdened by asking them to bear even partial travelling expenses.

At present there is only one representation per category per State. It should be increased to two. Sometimes best wrestlers of our country may belong to the same affiliated body. Such wrestlers do not come into limelight until the best wrestler remains in the category. This system reduces his chance to be even in the second rate National Team. Our youngsters who are mainly students should also get the opporunities to participate in such highlights.

In some countries wrestlers' life is insured when they play for their country and this is done by the National Federations in order to protect their families. This would enable our fighters to go all out without fear and worries of receiving injuries.

(Courtesy—NIS Journal)

FLOOD RELIEF ACTIVITIES

OF

GUJARAT VIDYAPITH

M. S. PATEL

Gujarat Vidyapith has a long tradition of working for relief to the distressed in the event of calamity, which goes as far back as 1927 when both torrential rains and heavy floods had played havoc in the region. In its long history of over 53 years whenever a disaster has taken place, sometimes even outside Gujarat, Vidyapith has tried to make its humble contribution in the relief operations. The social-service activities include even some long-term projects of social work which, the students of Vidyapith, under the guidance of the teachers, carry out as part of their studies. If education is for life, it should extend to the community and contribute to its upliftment in normal times and should take the form of help to the needy and the distressed in the event of calamity.

The flood in almost all the major rivers of Gujarat in the current year was one of the heaviest in the recorded history. It created a deluge in most parts of the State and caused a colossal loss when the people were just coming out of the effects of the previous year's drought. To mention the havoc played by the Sabarmati that flows through the city of Ahmedabad where Vidyapith is situated, it not only caused damage to standing crops and property worth crores of rupees but rendered thousands of people homeless on both east and the west banks, their house being either washed away or submerged.

All this called for massive relief and rescue operations which no agency could do single-handed. Still however, 94,000 food packets prepared from 15,000 Kilo foodgrains collected and distributed to over 15,000 people in 30 kilometer area, some of which were extremely untrackable except by walking in two feet deep mud.

On 1st September the day when the waters of the Sabarmati touched the highest mark, the teachers and the students of Vidyapith met to discuss and plan out what they could do in the situation. Although Shri Ramlal Parikh, the Vice Chancellor of Vidyapith was away for attending a conference on World University, it did not affect the will and determination of either the students or the staff. Together, they planned activities for the relief of the flood-hit people of Ahmedabad and the surrounding villages. Since it was not possible to extend services to all the flood-affected areas of the city, it was decided to confine the relief work mainly to the west bank of the river and to do intensified work there.

When the work was started, no one had an exact idea of the devastation and therefore of relief operations to be undertaken and things required. On the other hand there was no time to make the entire survey before launching the operations. It was decided therefore that on the basis of the data available, the work should be started and simultaneously a survey should be made as to the things like food, medicines, etc. required in different centres and in different areas. It was felt that teams of volunteers would be required to remove the silt from the houses of the middle class people of the Paldi area of Ahmedabad. Accordingly, the two programmers — that of survey and of relief work went on simultaneously for the first three to four days. Every evening stock was taken of the situation and plan for the next day was made in the meeting of teachers and student-representatives. The work was carried out accordingly on the following day.

What made the work difficult was the rain that continued to lash the city and the region even on the sixth day of the relief work.

Since the Vidyapith had no resources of its own for this purpose, what it could contribute was organised services. It was necessary to join hands with some agency that had the resources required for the relief work. Fortunately there is one such organisation in Ahmedabad called Sadvichar Parivar Samiti. This organisation readily accepted the suggestion of working in collaboration with the Vidyapith. The work done therefore is the result of the joint efforts of the Sadvichar Parivar and Gujarat Vidyapith. The following were the main relief activities undertaken.

Evacuation

As mentioned earlier, a large number of huts and several houses had collapsed in the rain and the flood and many were in a precarious condition. The families residing in such huts and houses in certain areas were taken to safer place and some were even brought to the Vidyapith campus and given shelter in one of the hostels.

Distribution of Food-packets

The work that required greatest attention was distributing food to the flood-hit people, many of whom had lost everything. Food was coming to Vidyapith for distribution from several voluntary organisations. But it was not enough. Vidyapith therefore had to prepare eatables before distribution at different places. This task was taken up by the housewives of the Vidyapith, teachers, girl-students and housewives alike who sometimes worked in the kitchen till the late hours of the night, their enthusiasm unabated by the gigantic task.

Even the packing of the food required a fleet of workers. This was sometimes done admiringly by the high school boys and girls of the Vidyapith.

The last but most difficult thing was taking the packets to nearby and distant places in the midst of the rain and distributing them. Here care had to be taken that the food was not wasted, nor anybody was left unfed. This work was done by the students of Bachelor of Social Sciences course of the Vidyapith. Batches of students and teachers in open trucks went to distribute food-packets upto distances of 30 K.M. and in some places walking in 4 feet water and mud. Every effort was made to locate the homeless living on trees or on small islands formed as a result of inundation of vast areas by water.

Distribution of Other Materials

Food, although the main thing, was not the only thing to be distributed. Other essential commodities of life, such as articles of clothing, bed-sheets and blankets had also to be collected, taken to the spots and distributed.

It was felt that after the recession of the flood-water what the middle class families wanted was not food packets but cereals, which they would cook for themselves. Packets of dal, rice and flour, weighing ten kilos each were accordingly prepared and distributed to those who were in a position to cook. The reluctance of the middle class house-wife in accepting the food grains created a pathetic scene at the site of distribution.

Health Services

With a view to preventing outbreak of epidemics, immunisation work such as cholera — innocculation was very essential. Eleven hundred & forty eight volunteers and workers as well as the people at the centres were innoculated against cholera. This was done jointly by the Health Centre of the Vidyapith and the Ahmedabad Municipal Corporation Health Authorities.

Other types of illness were not totally absent and medical aid including treatment had to be provided to the people in need. With scanty resources this was difficult and could not have been done had not a very generous offer of service and medicines come from some quarters. From the help thus given, the medical services programme was carried out.

Removing Silt

The Paldi area on the west bank of the Sabarmati inhibited by middle class people was the worst affected area of Ahmedabad. Here not only the roads were submerged, but waters had even entered the houses. When the flood receded, one to two-foot deep layer. of silt was found inside the houses covering the floor, the furniture and big and small things in them. Remvoing this silt was a stupendous task.

In view of the fact that the middle class people cannot afford to hire labourers asking exorbitant charges, the Vidyapith decided to send volunteers to this area to help the residents. The Shikshan Mahavidyalaya (College of Education) of the Vidyapith volunteered for this gigantic task and the trainees went to help the necessitous. The condition in which they had to work was unimaginable. There was horrible odour of spoilt foodgrains and other things around. The silt and mud was either sticky and slippery or had hardened. There was no water-supply in the area, the pipe-lines being broken. But inspite of all this, the work was done ungrudgingly.

Correlated Studies

In addition to the above-mentioned activities which required immediate attention, the Vidyapith has now undertaken other useful work as part of the flood-relief programme: Help to the workers and students of Gujarat Vidyapith affected by the flood in the form of books, clothes etc; A study of 'Effects of Food on the people of Ahmedabad city and nearby Villages' ; Preparation of a model plan for providing financial help to the flood-affected slum-dwellers for the use of Revenue Department of the Government of Gujarat; Study of etho-archaeological data seen in some affected area.

Adoption of Three Villages For Rehabilitation

The flood has left such a trail of devastation behind that the work of rehabilitation is going to be a long and demanding task. It requires careful planning, organised effort, coordination with State Government and Panchayat as well as other voluntary agencies. A plan for rehabilitation of 400 houses in three villages Fatehwadi, Keliavasana and Bakrol costing Rs. 10,00,000 is prepared. Each house to be rebuilt will need Rs. 2,500 of which Rs. 350 from the State, Rs. 350 from Chief Minister's Relief Fund, Rs. 300 subsidy from Panchayat and Rs. 500 as loan from Panchayat will be available. The rest of Rs. 1000 for each house will have to be raised through people's efforts. The Vidyapith have decided to undertake this work and complete it in one year. Batches of students and teachers will continue to work in these three villages, 20 to 30 Km away from Ahmedabad, for construction work etc. Care is being taken to ensure that houses are moved to a higher level land away from the bank. Some parts of the academic course may remain undone because of suspension of classes during these days but the students engaged in these activities get a real education for life. □

SPECIAL CONVOCATION

The Panjab University conferred on Her Imperial Highness Princess Ashraf Pahlavi of Iran the degree of Doctor of Literature (Honoris Causa) at a special convocation held on September 6.

Addressing the convocation the Princess called upon the learned community of the world to take the lead towards a new commitment to solidarity with the emerging forces that would mould the destiny of man.

She said, "Let us start on a more ambitious task and turn peaceful co-existence into solidarity." This, she felt, would give rise to new humanism based on personal liberation. She invited attention to the cultural heritage of India and Iran. Commending Indian culture which, she said had taught tolerancethrough the ages, emphasised that this was not an invitation to false pride or a backward glorification of the past. Tolerance was the precondition for exploring ways of contributing to the solution of the problems that the human family suffered at this time.

Calling for maximum utilisation of sciences and technology, which the West had developed, she desired that a new dialogue to contain modern technology within the bounds of an ethical and human framework must be established. India and Iran should be able to achieve this because the cultures of the two were based on the application of knowledge and pure science to a practical and authentic way of life. She observed that in bridging the gaps for promoting reconciliation the concept of East-West should be discarded. This separation artificially divided men from men and failed to see humanity as one great family with one destiny.

She added that tolerance never meant suffering intolerance. It also did not mean to suffer the exploitation of man by man or nation by nation nor it meant suffering of men without taking positive action. She held that disagreement among men, diversity of views and character, was the mainspring of all that had made for the fantastic variety of human experience. Therefore, diversity should become the source not of violence but of new efforts towards perfection. Diversity did not mean conflict just as unity did not mean uniformity. The interaction between the two cultures of India and Iran were a testimony to this simple truth.

Knowledge

Princess Pahlavi added that the four-millenia-old Indian culture was based on the foundation of one word — Knowledge — Knowledge that promoted understanding. From the most ancient document of world literature, which was the Rig Veda, the Indians began to hold that Knowledge was the cornerstone of freedom and ignorance was the source of all evils that plagued man. The culture of Iran had also tried to make its own contribution in this 'momentous task of understanding'. Throughout your long history this had been the recurring theme and rule that had defined India's relations with other men.

She held that the fantastic achievements of modern science and technology and the new balance of power that had emerged in the past few years could not conceal the fact that man suffered from deep contradictions and dichotomies. There were gaps between knowledge and wisdom; between thought and action; between people's aspirations and outmoded institutions. The immediate manifestation of these internal tensions of man was intolerance. She regretted that the world was still divided into hostile camps. There was no justification for this.

Citation

Reading the citation, Mr. Suraj Bhan, Vice-Chancellor, said that in honouring Princess Ashraf Pahlavi they not only honoured 'a leader who by her selfless service and unfailing devotion had carved out a distinct place for herself among the makers of modern Iran but also a nation that has had such a close cultural relationships with our land'.

The citation added that the Princess spearheaded the campaign for the emancipation of Iranian women and in the international field she always advocated and upheld the ideals of universal brotherhood and goodwill among nations.

Earlier, Dr. G.S. Pathak, Vice-President of India and Chancellor of the University, conferred the degree, which was recommended by the Syndicate and the Senate of the University.

The function was attended by a large distinguished audience, which included the Ambassador of Iran in India, Mr. B.N. Chakravarty, Governor of Haryana, the Chief Ministers of Punjab and Haryana and their Cabinet colleagues, the Chief Commissioner of Chandigarh, Mr. N.P. Mathur, Vice-Chancellors of Punjabi and Guru Nanak Universities and Judges of the Punjab and Haryana High Court.

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BORLAUG VISUALISES RICE REVOLUTION

(*Courtesy—The Motherland*)

Dr. Borlaug with Indian Scientists

Dr. Norman E. Borlaug, Noble Laureate and the originator of the high yielding dwarf Mexican varieties of wheat, visited the Andhra Pradesh Agricultural University recently. He addressed the staff and students of the College of Agriculture. Mr. M.R. Pai, Vice-Chancellor, presided over the function. In his address, Dr. Borlaug said that he expected a spectacular change in paddy production in India during the next few years. He was hopeful of increased production of rice along with other cereals as the necessary germ plasm is available in the country and the evaluation of the high yielding varieties is gaining momentum. He felt that the future of the country lies in the young men and women. He was tremendously impressed with the high yields in the demonstration plots, not only in cereals but also in other crops.

Dr. Borlaug advised the students to keep an open mind and to understand the problems of the farmers so that they would be benefited when they go out into the field to educate them. Giving the impressions about the other parts of the world, he said that the production has gone up during the last twenty five years in the agricultural world. This he attributed mainly to improved seed. But what is now being done by most of the farmers is using improved seed alone. But along with this, the nutrients necessary for the crop growth should also be taken up and package of practices adopted so that it would go a long way in increasing the production.

He cautioned the agricultural scientists that imbalanced use of fertilizers should be given up and the limiting factors in agricultural production need be studied with a problem oriented approach and avoid wastage of fertilizers and plant nutrients. These factors help in creating a sound agricultural production. Dr. Borlaug said that when food is in short supply psychological fear takes over the people and as such buffer stocks need to be created to meet the growing needs. This is possible only when we understand the overall problem in depth. The food requirements have to be kept in view to commensurate with the growth of population. The end product of any production oriented agricultural programme is to produce a band of capable workers who could implement the application of the results of research. If the results of the agricultural research did not reach the farmers, the expenditure and the very existence of the scientist becomes questionable. He appealed for inter-discipline and inter-institution coordination and cooperation and deprecated the idea of isolation among scientists, for significant scientific development, especially in agriculture and food production sectors.

ADULT EDUCATION CENTRE

Mr. Kirpal Singh Narang, Vice-Chancellor of Punjabi University, recently inaugurated an Adult Education Centre organised by the University's Department of Education and Community Services, in Sheikhpur Village. Mr. Narang in his address pleaded for an effective rapport between the university teachers and the community around the campus for the successful working of the centre. The university proposes to start work in the rural areas soon to help them in the eradication of illiteracy.

Smt. Sharda Divan, V.C., SNDT Women's University, helping Nawab Ali Yavar Jung with his convocation scarf

CHANGES IN UNIVERSITY LEGISLATION

Nawab Ali Yavar Jung addressed the convocation of S.N.D.T. Women's University, Bombay, this year. He said that education is the key to all progress and reform. For that, it must be meaningful at all stages from the primary to university and upwards. It has to combine within its scope the acquisition of both essential and useful knowledge, essential in the sense of indispensable knowledge and useful for one's self and for the society in which one lives. In addition, education should bring consciousness of one's place in a changing world and of the significance of that change, including consciousness of one's duties as well as rights. The relevance of education to society does not lie only in its being linked to job-opportunities. Relevance includes above all consciousness of the kind mentioned above.

In so far as the standards of the universities necessarily depend upon the standards of the education received earlier, the universities should be given greater say in the determination of the content and quality of the education imparted in schools. The Chancellor referred to the proposed changes in the legislation, which would fortify the administration of the universities, widen the representation of the teachers, associate students with some of university functions and provide an institutional forum for planning the future development of the university in the light of new knowledge, the needs of the country and the necessity for inter-change of ideas and experience.

He said that the Medical Faculty, with its system of internship provides a good illustration of the potential that exists for social service at its best, involving as it does the application of knowledge to those in need within the process of learning. Social services has now become highly professionalised. It is preferable that they should, in so engaging themselves, bring knowledge and skill to bear on their work by selecting fields, as far as possible related to their studies. This is the orientation now being given to the National Service Scheme. Women can contribute very greatly to such work.

AYURVEDIC EDUCATION

Dr. S.K. Dutta, Vice-Chanceller of Kurukshetra University addressing staff and students of Sri Krishna Ayurvedic College

Dr. S.K. Dutta, Vice-Chancellor of Kurukshetra University emphasised the need for intensive research in Ayurveda. While speaking at the foundation day celebrations of Sri Krishna Ayurvedic College, Kurukshetra, the Vice-Chancellor suggested that the Ayurvedic system apart from having research wing should also develop preventive medicines to immunise the masses of deadly diseases. The Ayurvedic College was founded by Shri G.L. Nanda a year ago and is situated in the Nabha House building on the banks of the sacred Sanehit Tank. The College is affiliated to the Kurukshetra University and has been geared to the needs of students from the inception. The College has six departments and a dispensary, which is looked after by a Vaidya in addition to the members of the faculty. The college dispensary provides free medical aid to the patients. A laboratory and a pharmacy have also been attached to the college.

FARMERS HANDBOOK

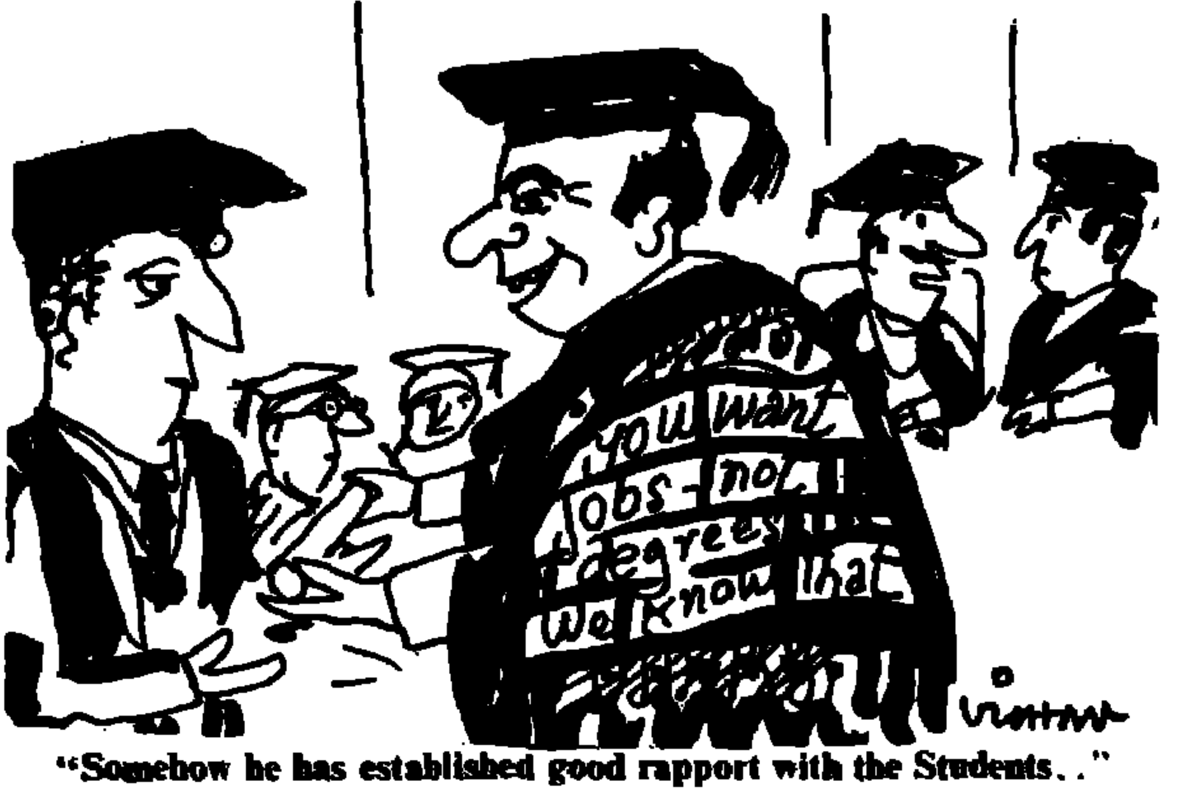
The University of Agricultural Sciences, Bangalore, recently brought out a two-volume book in Kannada dealing with a variety of problems of the farmers. Solutions to various problems of farmers have been suggesteed by the university specialists.

Dr. H. R. Arakeri, the Vice-Chancellor of the University, said that it was wrong to suppose that the ordinary ryot was not capable of learning modern scientific ideas. His own experience was that it was easy to convey these ideas to him, if done in a popular and familiar way.

CENTRES OF EXCELLENCE

Tamil Nadu Agricultural University is proposing to establish eight centres of excellence during the Fifth Plan. The centres are likely to cost about Rs. 280 lakhs which will come as assistance from the ICAR and such other aid-giving agencies like UNESCO, UNDF, FAO and World Bank.

Dr. G. Rangaswamy, the Vice-Chancellor of the university explained the objectives and functions of these centres. The eight centres are: Advanced Centre for Agricultural Economic Development, Institute of Plant Protection, Institute of Oil Production and Processing Technology, Institute of Soil and Water Management, Institute of Agro-Industries, Nuclear Research Laboratory, Regional Centre for preserving germ plasm of economic plants and Computer Centre. Each centre of excellence will be headed by a Director.



"Somehow he has established good rapport with the Students.."

KALINGA PRIZE

Mr. Nigel Calder, British Journalist and writer has been awarded the Kalinga Prize for popularisation of science this year. He shares the award with an American Scientist, Dr. *Philip* H. Abelson. Mr. Nigel Calder is the son of Lord Ritchie Calder, who had won the Kalinga Prize in 1960. Mr. Calder was nominated for the prize by the United Kingdom National Commission for UNESCO for bringing scientific matters to a wider audience as a former editor of the magazine —New Scientist — and the author of a number of scientific books.

The Kalinga Award was founded by Mr. Biju Patnaik, the Indian Industrialist and is given under UNESCO auspices. It enables the winner to come to India where he is expected to give lectures and discuss changes in social, cultural and educational fields as a result of the application of science.

Previous British winners of the prize include Sir Julian Huxley, Mr. Arthur C. Clarke, Dr. Fred Hoyle and Sir Gavin De Beer.

UNIVERSITY OF HEALTH SCIENCES

Mysore will soon have the first University of Health Sciences in the country. It is expected to organise and coordinate the development and research in medical sciences in the state. At present there are the following institutions which impart medical education in the state: medical colleges, dental colleges, pharmacy colleges nursing colleges, ayurvedic colleges, the All-India Institute of Mental Health and Institute of Aviation Medicine. Mysore has the largest number of medical colleges and has been the first state to have a separate Directorate of Indian Medicine. At present, the medical institutions are affiliated to the three Universities in Bangalore, Mysore and Karnatak. Students of one university face considerable difficulty in migrating to another university in the state because the curriculum are not uniform in all the universities. This had hampered the growth of medical education to some extent. In order to properly organise and achieve the requisite coordination and to ensure the desired development of medical sciences in all these institutions, a comprehensive bill has been introduced recently in the legislature. The Indian Medical Association has been pressing for the creation of a separate university of health sciences for quite sometime and the Indian Medical Council has also not been averse to this idea.

The headquarters of the university would be in Mysore town.

PERSONAL

1. Dr. P.D. Agnihotri has been appointed Vice-Chancellor of Jabalpur University.

2. Dr. B.S. Chauhan has been appointed Vice-Chancellor of Sagar University w.e.f. September 15, 1973.

3. Shri T. Das, IAS (Retd), has been appointed Vice-Chancellor of Orissa University of Agriculture and Technology w.e.f. September 15, 1973.

4. Smt. M. Jayalakshammanni has taken over as the acting Vice-Chancellor of Karnatak University w.e.f. September 27, 1973.

5. Dr. K. A. V. Pandalai, has been appointed Director of IIT, Madras w.e.f. October 1, 1973.

6. Prof. Fakhruddin Ahmad, Head, Dept. of Geology, Aligarh Muslim University has been awarded the Chrestien Mica Gondwanaland Prize by the Mining, Geological and Metallurgical Institute of India.

7. Dr. S.K. Guha, former Professor of Chemistry at Science College, Patna, has been made a life member of the Royal Institute of Chemistry, London, in recognition of his outstanding work.

8. Dr. R.N. Singh has taken over as the Registrar of the Bhopal University w.e.f. September 14, 1973.

9. Mr. V. Gopalakrishna has been appointed the Comptroller of the A.P. Agricultural University

DROUGHT CODE

Dr. M. S. Swaminathan, Director-General, Indian Council of Agricultural Research, New Delhi, addressed the eighth annual convocation of Andhra Pradesh Agricultural University this year. In his address, he pointed out that the agricultural university concept was the first serious attempt in the country to link education with research and productivity. This concept, if properly implemented would help us to arrest the growing alienation of education from the realities and demands of day-to-day life. He pleaded that the university should develop co-operative programme of research with Sri Venkateswara University at Tirupati, where it has an agricultural campus.

The Agricultural University in Andhra Pradesh started with the clear mandate of being the agent of the State Government for conducting research all over the State in agriculture, animal husbandry and fisheries. Through its various research centres and through the Krishi Vigyan Kendra (Agricultural Polytechnics) which are proposed to be established during the Fifth Plan, the university would have ample opportunities for helping to convert the natural endowments of the State into wealth meaningful to the people.

Dr. Swaminathan said that an important task of the agricultural university, should be the integration of information coming from different departments into a scientific land and water use plan for every block of the State. This can be done successfully if scientists working on crops, soils, water and animals including fishes, look at the problems of an area in their totality. In such parts of the State where land is the most limiting factor we must optimise the use of land. In areas where water is the most limiting factor we must maximise the income per litre of water.

He said that steps in every area to replace palliative measure with positive advance action and preparation be taken.

During the post-independence period, there has not been any significant change in the provisions of the Famine Code promulgated in 1883. With the data fast becoming available from the work of the All India Dryland Farming Project and that might become available in future from ICRISAT, it should be possible to develop in the place of the Famine Code, a Drought Code which outlines for each agro-ecological region a list of anticipatory measures and alternative cropping strategies which ought to be adopted when there is evidence of the incidence of drought. This kind of programme may involve the following steps like:— (a) Maximising production and altering cropping patterns when necessary in irrigated areas; (b) Mid-season corrections in crop planning in unirrigated areas; (c) Introduction of crop life saving research techiniques in the drought-affected areas; and (d) Building up of appropriate and fertiliser buffers to implement the drought cropping strategy.

Dr. Swaminathan said that there is a growing accomplishment gap in our country as a result of our inability to convert scientific findings into production advances. The accomplishment gap arises from deficiencies in the areas of communication, input distribution, resource availability and social organisation. Where dedicated and technically competent leadership becomes available at the village level resulting in the development of an appropriate social organisation, progress can be fast.

Our population is often referred to as our major handicap. It can become our major source of strength. But for this, we have to undergo a process of "de-schooling" or what Chinese call "re-education". While de-schooling or re-education may be important for those who have bean trained in a status-quo philosophy, the process of re-education can become the new method of education itself in our agricultural universities and agricultural polytechnics. The most important educational aim under this system have to be the acquisition of practical still in addition to theoretical knowledge and the development of self-confidence.

The university conferred the degree of Doctor of Science (Honoris Causa) on Dr. Swaminathan.

FOLKLORE AND CHARNI LITERATURE

The Saurashtra University has provided special funds for the collection and compilation of rare manuscripts in Folklore and Charni Literature. Folk literature has been introduced as a special subject for M.A. course from this academic year. The teaching will be entirely in Gujarati.

As many as 15 units were in operation in the various colleges of the university for the NSS work this year. The activities of the camp included students leadership training, construction of roads, staying with the farmers and doing their work in the farms, understanding the problems of farmers, imparting primary education to the members of their families, reading newspapers to them, mass prayers, group dinners with Harijans, vaccination of cattle, preparation of school gardens, first-aid training. Visits to Ashrams and old people in the villages were also arranged. A study of the working of Panchayats was undertaken. Trees were planted and elocution competitions were held. Few Juvenile Courts and women welfare centres were started.

EXAMINATION REFORM CENTRES

The University Grants Commission has selected twelve universities in the country for implementing the examination reform plan. The universities are: Aligarh, Andhra, M.S. Baroda, Panjab, Gauhati, Rajasthan, Jadavpur, Poona, Sagar, Mysore, Madras and Calicut. These universities will be assisted in setting up cells for carrying out various examination reforms suggested by the Commission. A committee has already been constituted for the implementation of this plan. The Commission has suggested earlier the introduction of a "grading system" in place of the present system of evaluation of scripts through marks. A continuous process of internal assessment in the colleges has also been recommended in addition to the regular examination. The plan also envisages the setting up of a question bank. Thus the question paper can vary from student to student, if the suggestions to have the questions printed on cards is adopted. The student can pick up any of these cards.

POSTGRADUATE CORRESPONDENCE COURSES

The correspondence course unit of the University of Rajasthan is faced with the problem of huge enrolment in History and Political Science this year. The courses were started in these two subjects in 1971-72.

Rajasthan is the only university which allows teaching at the postgraduate level through correspondence. The university is providing all facilities for tutorial work. Useful reading material is also supplied to students enrolled for different courses. A series of contact courses are arranged at different centres. Library facilities have been made available at Jaipur and Delhi centres. These courses have since then become very popular.

In the first session, 344 students took admissions in History and 574 were enrolled for Political Science courses. The percentage of passes was about 80. During the session 1972-73, about 1300 students took admission in M.A. Previous Political Science and 628 in M.A. Previous History. The results, were quite encouraging with 74 per cent pass in M.A. Political Science. The percentage in M.A. History was 86. In the academic session 1972-73, 315 students were admitted in M. A. Final Political Science, one student secured first division marks with the pass percentage at 77.13. In M. A. History, 28 passed in first division and the total pass percentage was 91. This year over a thousand applications have already been received for enrolment.

BOOK EXHIBITION

The Madras Centre of the World University Service organized a book exhibition from 24th to 26th August for the benefit of the student community. The leading publishers of the city sent their important publications which were of great interest to the students. The exhibition had the added advantage of the participation of the academic community participating in the exhibition. The average attendance for all these days varied from 200 to 300 persons. The centre has a plan to organise similar exhibitions in the neighbouring localities.

VCs CONFERENCE IN TAMIL NADU

The Vice-Chancellors of the three universities in Tamil Nadu had prolonged discussions with the Education Minister, Mr. V.R. Nedunchezhian in Madras recently. The question of reverting to the old two-year intermediate course from the present pre-university course and the consequential changes in the duration of the school and degree courses were discussed at some length. The Vice-Chancellors were unanimous in their opinion that any switch over to the two-year intermediate course without the necessary preparation would lead to various problems like provision of larger accommodation, training of requisite number of teachers and the obligation of the Government to impart free education. In view of these implications, it was decided to examine the matter further in all its aspects and collect the relevant data so that the financial commitments could be worked out and discussed further in some detail. The Minister said that the different states in the country have different pattern and there is no uniformity about the school and university education. The pattern of 11+1+3 was prevalent only in Tamil Nadu, Pondicherry and Gujarat. The situation in other states is like this: Andhra, Kerala and Mysore — 10+2+3, Uttar Pradesh — 10+2+2, Orissa and Bengal — 12+3, Delhi, Andamans, Nicobar Islands and Laccadives, Punjab, Haryana, Jammu and Kashmir, Himachal Pradesh, Manipur, Chandigarh, Tripura and Goa—11+3.

ROYAL JOKE

Education is a favourite hunting ground of the bureaucrat. It is also the favourite battleground for the educrat, the socio-crat and assorted intellectual snobs, so much so that the calm voice of reason and commonsense seldom gets heard.

(Duke of Edinburgh at the Graduation Ceremony of Paisley College of Technology, Glasgow)

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TEACHING AND EVALUATION IN LIBRARY SCIENCE

The Department of Library Science, University of Delhi organised an All India Workshop on the methods of teaching and evaluation with the assistance from the University Grants Commission. About 30 papers on different aspects of library science teaching and evaluation were presented and discussed at the workshop. Dr V.P. Dutt, Pro-Vice-Chancellor of the university in his inaugural address explained the importance of libraries, proper library service and library training. He said that in the university. library science department and library must function in close collaboration with each other. Since books are expensive, it will not be possible for a researcher to build up his own collection of the material he requires and, therefore, throughout the country good research collections must be built up and developed. He emphasised that it is the libraries which should exist for the researcher and not the researcher for the library. He emphasised on the use of simple techniques in organising the libraries so that the retrieval of information may become easier by the users.

While explaining the responsibility of the librarian and library staff members, he mentioned that such persons must be properly educated academically and professionally and should at the same time be very well read persons. They should be much more well-informed about the books and other research materials than the research worker himself because while the research worker will be limited to his own specialisation, the library staff members have to help not one but many such research workers.

Amongst the various recommendations made by the workshop, the following may be mentioned: (1) The Department of Library Science like other teaching departments should be a constituent department and should have a full-time teacher of the library science as its Head; (2) The practice of appointing part-time teachers should be discouraged; (3) In order to promote academic communication between teachers and also to facilitate the selection of examiners by the departments need for a comprehensive directory of teachers of library science in the country was recognised; (4) In view of the new developments in the field of library science and changing needs of libraries, the workshop recognised the need for revision of the existing syllabi being followed at the B.Lib.Sc. and M. Lib.Sc. levels in Indian Universities. For this purpose, it was suggested that the UGC may appoint a Review Committee consisting of full-time heads of departments of library science along with few working librarians; (5) Teachers should prepare detailed synopsis and reading lists for various topics in their respective papers for circulating among the students in the beginning of the academic year or semester; (6) The use of audio-visual aids in the teaching of various aspects of library science should be encouraged; (7) Topics for Project Reports be selected from the field of library and information science. For Literature Survey, other subjects may also be included with emphasis on the study of literature, sources of information, bibliographical tools.

The importance of proper evaluation and need for introducing various reforms in the existing methods of evaluation in library and information science was recognised by the workshop. It was felt that since this area requires a detailed study and discussion, a seminar, especially for this purpose be organized in the near future.

The need for developing closer cooperation among the Departments of Library Science in the country was recognised and the following areas of cooperation were identified: (i) formulation and revision of syllabi, (ii) exchange of publications and reading lists, (iii) promotion of academic and professional activities, and (iv) inviting teachers to deliver extension lectures.

THIRD PSYCHIATRIC CONFERENCE

The third conference of Eastern Zone of Indian Psychiatric Society was held recently at Gauhati Medical College on 10th and 11th September. The Minister of Health, Mr. C.S. Teron inaugurated the conference. In his address, he urged the psychiatric and psychologists to study the problem of mental health of the present day society due to increased stress and strain of a sophisticated life and to find out its solution. The inaugural session was followed by a symposium on Problems of Organisation of Mental Health Services with particular reference to Eastern States under the chairmanship of Dr. D.N. Nandi. In the two-day conference, sixteen scientific papers were read in three scientific sessions on the subjects of psychiatric, psychological and psychosomatic importance. The session came to close with a "Brain trust" which was the most attractive item of the programme — because of the active participation of the audience.

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N. I. S. CENTRES

The Netaji Subhas National Institute of Sports at Patiala has approved an ambitious programme for the development of physical education and Yoga during the Fifth Plan period. A committee has been appointed under the Chairmanship of Gen. P. P. Kumaramangalam with Mr. Kanti Choudhary, Joint Secretary, Ministry of Education, Mr. R. L. Anand, Mr. T.D. Rangaramanujam and Mr. S.D. Chopde as members, to examine the feasibility of creating other wings of the NIS in the country. The committee has visited the various places in Tamil Nadu, Kerala, Andhra and Mysore. A recommendation is likely to be made for the establishment of another centre of NIS at Bangalore.

EUROPE'S LARGEST MEDICAL SCHOOL

The University of Manchester Medical School, the largest and most sophisticated in Europe, was officially opened recently by Lord Todd, British scientist and Nobel Prize winner.

He said it would no doubt act as a model for medical education for the 21st century, not only in Britain but on a universal scale.

Lord Todd, who was Chairman of a Royal Commission on medical education, said it would not be possible to teach medicine in all its facets in a totally integrated building, designed to be changed as the nature of medical education altered. Although the computerised, air-conditioned building was sophisticated, it was vital that the students who graduated from the school would be the sort of doctors who could deal with the increasing complexity of modern medical practice in a compassionate way.

Overseas contribution

Lord Todd praised the contribution made to Britain's National Health Service by doctors from overseas — often from the developing countries. They would continue to play a vital part in medicine in Britain and in their own countries.

"Today," said Lord Todd, "the doctor is faced with problems more acute than his predecessors. Changes in family life, in attitudes to religion and religious belief, and the increased demand for medical attention which always accompanies higher living standards, produce a situation in which the symptoms presented to the general practitioner are often social and psychological rather than physical in origin. The immense power of modern surgery and the availability of highly potent drugs through the pharmaceutical industry bring the doctor face to face with major ethical problems."

Lord Todd said that undergraduates must be given a broader and better integrated degree course and develop technical skills at the postgraduate level through inservice professional training.

Students from India are among those from overseas attending the Manchester school.

The school will accept 10 per cent of its 275 students each year from overseas. Its target is to produce 250 doctors each year by 1976.

The total cost of the four-storey building — the size of a small university — is £12.7m.

BOOK ON GEOPHYSICS

Shri N. Narotham Reddy, Vice-Chancellor of Osmania University recently released the book "Introduction to the Theory of Fields" authored by Dr. V.L.S. Bhimasankaram, Professor and Head, Centre of Exploration Geophysics, Dr. G.A. Soloviev, Docent, Moscow Geological Prospecting Institute and Dr. S.V. Seshagiri Rao. Dr. Hari Narain, Director, National Geophysical Research Institute, Hyderabad in his foreward has commended the book for students of geophysics as it has presented the basic concepts of field theory in a lucid and illustrative way.

Rural Home Science College

The University of Agricultural Sciences, Bangalore, is planning to set up a College of Home Science in one of its campuses which will be especially designed to the needs of the rural society. Usually the home science colleges function in urban surroundings and have a different orientation and outlook. The proposed college will be linked with the agricultural programmes. To start with, the undergraduate programme in Home Science especially in Human Nutrition and Home Science Extension will be organised as these areas are closely associated with crop and animal science programmes. The research work to be organised in Human Nutrition will have links with crop and animal improvement programmes.

The rural women have a key role to play in the transformation of agricultural technology. It is necessary to educate them regarding nutrition and diet, child care, textiles, family budgeting so that along with improvements in farm incomes, rural living may also improve in quality.

The university also proposes to start an Institute of Agricultural Administration and Management during the Fifth Five Year Plan. The Institute would offer training courses of short duration in these areas for high level officers of the Departments of Agriculture, Animal Husbandry, Horticulture etc. The training would be input, output and production management and agricultural administration. There is an urgent need to build up technical competence as well as administrative and management capacities in the various developmental departments of the State and Central Government. It is proposed to develop the institute as an All-India Organisation with assistance from the Government of India and the Indian Council of Agricultural Research.

LETTER TO THE EDITOR

The ostensible object of M.P. Unified Universities Act 1973 is "to consolidate and amend the law relating to universities and to make better provision for the organisation and administration of universities in Madhya Pradesh."

It had been brewing for nearly a decade: but a particular obstruction to the authority of the Governor-Chancellor acted as the fulminating point, and the bill was passed in one day.

It has steam-rolled academically most advanced university brought into being by generous benefection of a giant amongst intellectuals like late Sir Hari Singh Gour who had founded the Saugar University having freshly arrived from U.K. after studying the working of the Oxford, Cambridge and London Universities. The university had an elected Chancellor till recently when the Governor was made the ex-officio Chancellor.

The very idea of uniformity is repugnant, since it kills the individuality and even the personality of a body like a university.

This Act of 1973 has constituted a coordinating committee consisting of;

(i) Kuladhipati (Chancellor)

(ii) Kulpatis (VCs) of 8 universities

(iii) Chairman of M.P. Uchcha Shikasha Anudan Ayog.

(Higher Education Grants Commission)

(iv) (v) and (vii) Secretaries to M.P. Govt in Laws, Finance, Education departments.

(vi) Secretary to Governor of M.P.

The Chancellor with the authority of the Governor sits as Chairman.

This co-ordination committee is drawing up first statutes and ordinances: and is empowered to approve or reject the statutes and ordinances submitted by the Executive Council of the universities.

There will be State-level Student Consultative Committee with approach to practically every side of the activity of the university. The students have representation in the Court Academic Council, Board of Studies. But a student should have spent only 7 years of his life after having passed the Higher Secendary Examination, thus keeping out professional politicians.

The Kuladhipati (Chancellor) can ask the Kulpati (V.C.) to relinquish office if among other things the latter 'is incapable of managing the affairs of the university'. This gives the Chancellor supreme power over the V.C.

The Act has continued the permission to private candidates to take the B.A., M.A., B. Com., M. Com. examinations as non-collegiate students. Girls can take the LL.B. examination without having attended lectures. Even the First B.Sc. Exam. can be taken privately if one has performed the minimum number of experiments in the laboratory of a recognised college.

Huge frauds have been practised upon the universities on account of this loop-hole. The Open University might not even require the minimum qualifications for admittance.

The Act empowers the universities to establish correspondence courses.

At the time of the appointment of the Kulpati (V.C.) the Kuladhipati (Chancellor) shall appoint a Committee consisting of:— (i) one person elected by the Executive Council; (ii) the Chief Justice or a Judge of High Court; (iii) one person nominated by the Chancellor. The Kuladhipati (Chancellor) shall appoint one out of the panel of three names submitted by the committee. Thus Kuladhipati selects twice.

Raghuvir Sahay Nigam,
Guna (M.P.)

CURRENT DOCUMENTATION IN EDUCATION

From now on every issue of UNIVERSITY NEWS will carry a list of select articles appearing in important periodicals in education. The first of these lists is on 'Educational Sociology' and comprises articles culled from the periodicals received in the IUB Library during January-August, 1973.

EDUCATIONAL SOCIOLOGY

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THESES OF THE MONTH

PHYSICAL SCIENCES

Mathematics

1. Bhattacharya, Sankar Narayan. Seismic surface waves. University of Delhi.

2. Chawla, Mohinder. Differential geometry on almost *complex spaces with hermite and finsler matrices. University of Delhi.*

3. Kale, Prabhakar Pandit. A study of certain relativistic gravitational fields. University of Poona.

4. Pal, Ram Prasad. Some problems of thermo-elasticity. University of Burdwan.

5. Rathore, Ram Kishore Singh. Linear combinations of linear positive operators and generating relations in special functions. Indian Institute of Technology, Delhi.

6. Roy, Ramgopal. Some problems in elastic waves and vibrations. University of Kalyani.

7. Shakti Bala. Some mean functions of entire dirichlet series. University of Jammu.

Physics

1. Ghosh, Promode Chandra. Some studies of the radioactivity in minerals, ores and soils with special reference to radon. Indian Institute of Technology, Delhi.

2. Ishwar Rattan. Interaction of electromagnetic pulses with moving and stationary media. Indian Institute of Technology, Delhi.

3. Mehrotra, Kedar Nath. Lattice dynamics of metals. Kanpur University.

4. Seetharamanath, M. N. Particle—core coupling in some odd—nuclei with norz=29. Andhra University.

5. *Vithal, Krishan Lal. Some plasma micro-instabilities* and their impact on solar wind structure. University of Delhi.

Chemistry

1. Anand, Surrinder Mohan. Synthetic studies in naturally occurring xanthones. University of Jammu.

2. Gupta, Om Prakash. Complex compounds of some bivalent transition elements with some organic ligands. Magadh University.

3. Joshi, Vasant Yashavant. Studies on chemical reactions involving halides and oxyhalides. University of Poona.

4. Kulkarni, Sharadchandra Vishnu. Tracer studies of competitive absorption and surface diffusion. University of Poona.

5. Mishra, Shobha. Reactions of hydroxymethylene ketones and of their ethers with esters. Indore University.

6. Mohanty, Mahendra Kumar. Kinetics and mechanism of oxidation reactions. Berhampur University.

7. Patel, Manibhai Chhotabhai. Studies on some Schiff's base metal complexes. Sardar Patel University.

8. Rama Sastry, V. V. Studies on the synergistic effects in the solvent extraction of vanadium (IV). Andhra University.

9. Sathaye, Shivaram Dattatraya. Study of chemically deposited thin films of Zno and Cds. University of Poona.

10. Satish Chander. Phytochemical studies on new plant sources of pyrrolizidine alkaloid and preparation of pyrrolizidine derivatives. University of Jammu.

11. *Saxena, Prem. A formula for evaluation of resonance integral and its application to semi-empirical calculations. University of Delhi.*

12. Shukla, Ramjee. Studies in potential organic insecticides. Kanpur University.

Engineering & Technology

1. Gill, Bhupinder Singh. An investigation of pulsating combustion. University of Burdwan.

2. Hazra, Satya Narayan. Approximations of recursive digital filters. Indian Institute of Technology, Delhi.

3. Kulkarni, Shyamkant Anant. Computer simulation of systemic models based on response of an oculomotor subsystem. University of Poona.

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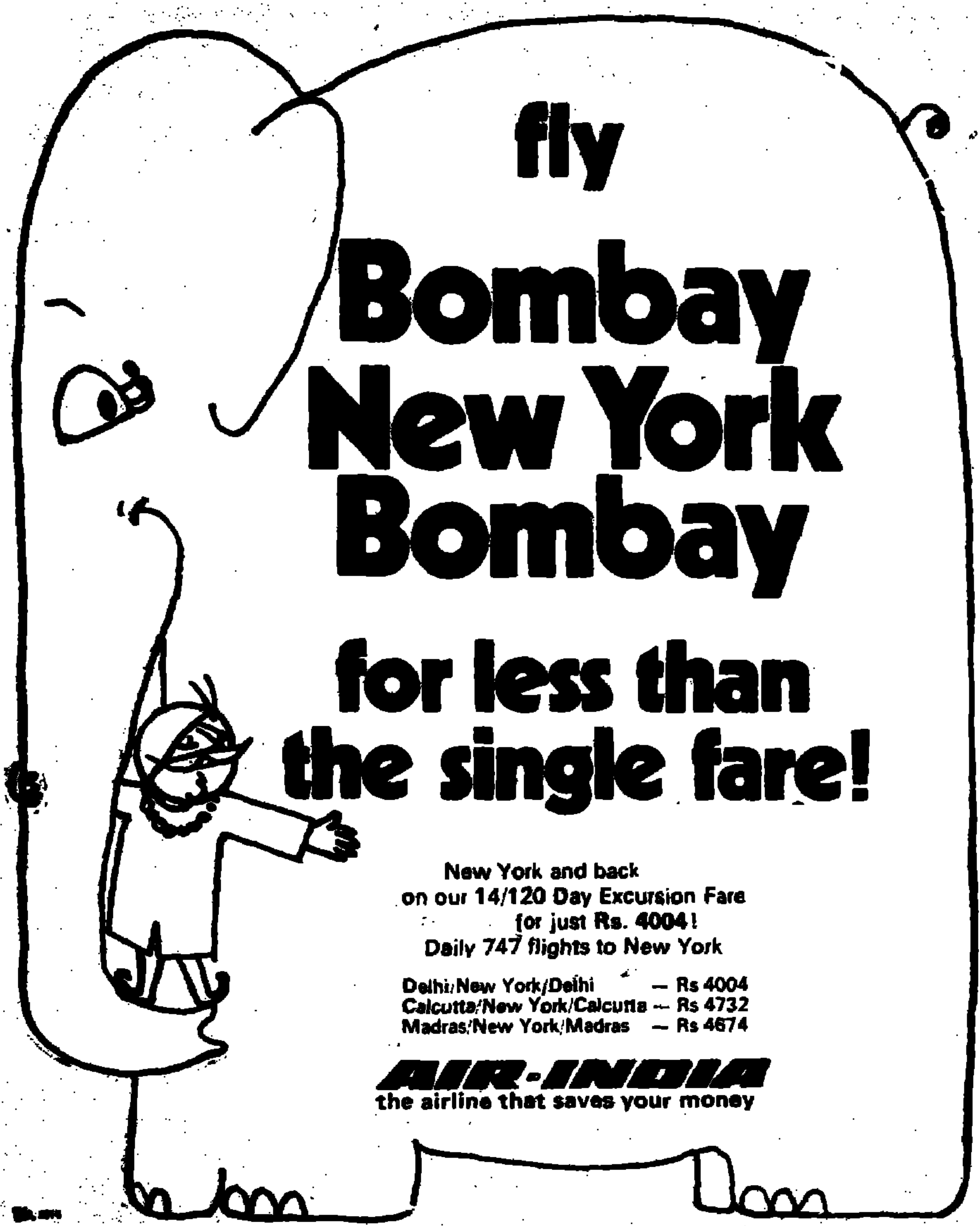

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Editor : ANJNI KUMAR

A. M. U. Statute Amendments

The President, in his capacity as Visitor of the Aligarh Muslim University, has approved the amendments to certain statutes of the University as suggested by the University's Executive Council.

The amendments, broadly based on the opinions expressed by the Staff Asssociation of the University as well as the Court and the Academic Council in the main are :

(A) The Chancellor and Pro-Chancellor, instead of being appointed by the Visitor from a panel recommended by the Executive Council, will be appointed by the Visitor on the recommendation of the court and should hold office for three years as against the existing term of five years. The proviso empowering the Visitor to call for fresh recommendation, in case he does not approve the persons recommended, has been deleted.

(B) The designation of the nominee of the Visitor on the selection committee for the post of Vice-Chancellor, has been changed from 'chairman' to 'convener'. The clause regarding the Vice-Chancellor's eligibility for appointment for another term has been deleted.

(C) The power of appointment of a dean of faculty will be vested in the Executive Council instead of the Vice-Chacellor. A Dean will be appointed by rotation according to seniority from amongst the professors and his term has been reduced from three to two years.

(D) The procedure regarding appointment of Heads of Departments will be provided in the Ordinance to be framed by the University instead of statutes.

(E) In the provision relating to the composition of the court, representation has been given to non-teaching staff, donors, Muslim culture and learning and All India Muslim Education Conference. The number of Visitor's nominees on the Court has been reduced from 20 to 10. It has also been provided that, instead of rotation by seniority, the teachers will be elected from amongst themselves. Certain minor adjustments have been made in other constituencies.

(F) In the Executive Council the three teachers will be elected from amongst themselves, instead of being elected by the Academic Council. In the Academic Council also, three Professors, five Readers and seven Lecturers are to be elected instead of being appointed by rotation according to seniority.

(G) The powers of the Academic Council have been made comprehensive by inclusion of certain additional functions.

(H) All the members of a department will be members of the board of studies of that department. The functions of the boards of studies have also been spelt out in detail.

(I) The provisions relating to the departmental committee, students' union, teachers' association and non-academic staff association have been deleted.

(J) The Dean of the faculty concerned has been included as a member of the selection committees for appointment of professors, readers and lecturers.

In view of the above changes, amendment to the Act is not considered necessary.

To have an Open University in India on the pattern of the Open University in the U.K. is an academically uphill task. Are not some of our existing universities "Open" Universities?, the author poses the question and makes some suggestions relating to the practical organisation of Higher Education.

Open University in India

K. L. JOSHI

The proposal of the Government of India to establish a national peoples university on the broad outlines of the Open University in the U.K. is commendable. However, the following facts about the U.K. Open University and Indian conditions may be first noted.

Britain's Open University

Britain's Open University began its course in January 1971 but the preparation took nearly 6 years from 1965 when an Advisory Committee was appointed to look into the possibility of such an institution. The white paper published in 1966, accepted the recommendations of the committee that degree courses of a general type should be offered and that the University should confer degrees in its own right.

The second step that they had taken was appointment of a Planning Committee in 1967 to work out a plan for establishment of the Open University and to prepare a draft charter and statutes. In 1968 they took the steps of appointing Dr. Walter Perry as Vice-Chancellor of the University.

Open University was planned according to the report of the Planning Committee which was published in January 1969 and was accepted by the Government. In June 1969 the University became autonomous and received the Royal Charter, the Central Advisory Council for the University was appointed with Lord Crowther as the Chancellor.

In 1970 the University opened its list for applicants and out of 40,000 applications 24,000 were registered in January 1971. In 1973 the University is the second largest in Great Britain, after the

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The author is former Vice-Chancellor of Indore University and a UGC fellow at Gokhale Institute of Politics and Economics, Poona.

London University, with 38,000 students which excludes the first and second year students, who have not continued their studies. The University awarded its first degrees in January 1973 to 867 students.

New Teaching Techniques

The important innovation of the Open University is to use new teaching techniques which consist of a combination of, 1) television and radio broadcast, 2) correspondence work, 3) summer schools, and 4) study centres.

There are only five faculties: 1) Arts, 2) Educational Studies, 3) Social Sciences. 4) Mathematics, 5) Science and Technology.

The largest number of students are in Educational Studies and gradually the number in Science and Technology and Mathematics is increasing according to the Second Report of the Vice-Chancellor published in 1973, for the year 1971. They have established the Institute of Educational Technology for experimentation in the methods of teaching and other aspects of educational methodology.

Courses of Study

The course structure of the Open University is different from the conventional university. The calendar year provides 4 levels of academic study. The first level course in each faculty is known as a foundation year. Therefore 5 foundation courses are provided for the 5 faculties. Secondly, the whole idea of examination and courses is based on the credit system. There are full-credit courses as well as half-credit courses that the students could take. Credits must be obtained in 2 foundation courses before students can proceed further to their B.A. degree. The ordinary degree is awarded if the student obtains credits in 2 foundation courses and 4 courses at the second or subsequent levels. These 4 can be at second level, 3 at second level and one at third or 2 at second level, one at third and one at fourth level. There is also provision for honours degrees with additional credits i.e. 2 more credits. There is also provision for credit exemptions to candidates who possess qualifications from other institutions.

Science students receive a science kit for home experiment and so also the technology students. This has been specially prepared by the team of research workers and a good deal of time and pedagogical methods have been spent on the preparation of the kit. It contains electronic units to demonstrate the working of computers. There is also a students computing service to be used by mathematics and technology students with about 170 computer terminals linked to other centres in New Castle, London, and the University headquarters. Tape recorders are also used in the technology courses and the production of course material is a specialised section of the academic staff, the BBC production staff and the educational technicians drawn from the Institute of Educational Technology. This team is responsible for the syllabus contents and the design of the courses.

In May 1973 each faculty had a full-time Dean and Director of Studies and the other academic staff included 28 professors, 47 readers and senior lecturers, 129 lecturers, 95 staff tutors and an academic supporting staff of about 100 course assistants, research assistants and research officers. Besides, there were about 6,000 part-time academic staff based in the regions and employed by University as councillors and course tutors. The University also engages the services of permanent academic and other specialists for individual contributions on particular subjects. Over 200 outside countributors have assisted in the production of the foundation courses.

Annual written examinations on each course are held between October and November throughout the different centres in Britain. There are about 260 study centres supplied with television and radio sets and other facilities like the library of recordings, audio tapes etc. Besides, the summer schools are organized for the students doing correspondence courses. The summer schools last for a week for each foundation course and are held in other universities where conventional teaching is provided in the form of lectures and seminars.

The University has a well organized administration with an establishment of the Chancellor and the Council mentioned above along with one Vice-Chancellor and 3 Pro-Vice-Chancellors in charge of 1) Academic policy, 2) Planning, 3) Staff and students affairs. Besides the Council and the Senate there are a number of advisory committees of representatives of a wide variety of educational interests and there are also a number of liaison committees concerned with local educational authorities.

It will be seen that unlike our correspondence courses in Delhi and other universities the students in the Open University have to take the courses seriously i.e. response to correspondence courses is about 80 per cent against about 5 per cent in Delhi University and the attendance in the summer schools and the study centres is between 80 per cent and 90 per cent as against the contact programme of Delhi University where the attendance in hardly 10 per cent.

Feasibility under Indian Conditions

To have an open university in India of the type in U.K. is financially not feasible and academically an uphill task. The Open University in U.K. gets grants from the government and does not receive the aid from the British U.G.C. In 1972 the University received £ 8 million i.e. about Rs. 16 crores for current expenditure and a further grant of £ 8 million (Rs. 16 crores) for capital expenditure. The fee for each student is £ 200 (Rs. 4,000) for ordinary B.A. and £ 250 (Rs. 5,000) for honours course. The fees include cost of summer schools for the foundation year. Such investment and such high fees are not feasible in India.

But the major problem in India is that academically a central national university will have many problems of providing courses in different languages. If they take up English and Hindi as the two languages in which courses could be constructed it will create opposition from West Bengal and the southern States. If only English is adopted it will have opposition from the Hindi speaking States. During the last 15 years having encouraged Indian languages at the university level students have lost power of command and expression in English. They could hardly use it even as a library language much less as a language of communication. This is the case of the majority of students or at least of the students who are likely to join the open university.

Correspondence Courses

I would refer to an article on Open University by Dr. Amrik Singh appearing in *University News* of August 1973. He has pointed out that the fraud of the correspondence courses has an educational enterprise. He has stated that through correspondence education a university—he presumably refers to Delhi University—has been able to accumulate Rs. 20 lakhs as surplus in 10 years and the response sheets indicate that while in 1964-65 the percentage of response sheets received back was 22.14, in the year 1968-69 it was 8.5 and in the year 1972-73 it was 5.8. This indicates a declining curve, with the rising numbers. Nobody seems to take the lessons posted to the students seriously. This means a mockery of the very essence of teaching by correspondence. How do we expect therefore correspondence courses to be successful in an open university? At the same time, correspondence courses are the bedrock of the planning of Open University in the U.K. The summer school programme in the U.K. is attended by 80 to 90 per cent of the students while the personal contact programme of Delhi University was attended not even by 10 per cent of the total enrolment. Dr. Amrik Singh points out that "correspondence education in every university in India becomes in ultimate analysis, something faceless, soulless and anonymous". The question is why correspondence courses should have been allowed to operate in this manner and nobody—not even Education Ministry or the U.G.C.—have raised their finger against the absence of teaching through rerespondence in the scheme.

Existing Open Universities

But the most important point to be rememberd is that today quite a number of universities in India have already become open universities in the sense that students are allowed to appear privately and they follow the syllabus prescribed for the examination and prepare themselves during the last month or two by reading cram books and bazar notes. The M.P. universities which I know very well have in their Acts provided for students appearing privately for all undergraduate courses including science with the proviso that the science students must do minimum practicals prescribed by the university in a recognized college. The universities in M.P. have all liked the statutory provision for three reasons.

1 The colleges are no longer overcrowded by indifferent students, e.g., the Holkar College of Science, Indore, which had about 2,400 students on its roll earlier had only 1,300 students after the announcement of the Government policy.

2 Private students appearing in this way have given a large income to the universities by way of examination fees which was welcomed by them because the Government has been very tardy or negative in relation to payment of maintenance grants to the universities. Indore, Gwalior and Raipur for example get only Rs. 3 lakhs as maintenance grants per year. In 1972 Indore University had 10,000 students appearing privately for examinations giving a net income of about Rs. 2 lakhs which helped the University balance its maintenance budget. The same was the case of the other universities in M.P. Poona University allows students to appear privately and formerly they were required to take one more year for completion of the course than the normal academic duration. But now this condition has been removed. Delhi, Bombay, Rajasthan, Punjab and other universities which have introduced correspondence courses are "open" universities.

3 Thirdly students like this arrangement for those employed could take degrees which are hardly difficult and in any case they have discovered that there is not much teaching done in the colleges today and they could study privately for the minimum requirements. The "poor" students like it for they do not have to pay college fees for what they regard as fun of attendance and not learning.

My personal experience of a student who was a full-time worker in the University of Indore and who appeared for his M.A. examination in Economics with Hindi as medium was that in spite of his heavy office work he was able to secure a second class in the M.A. examination after reading only for 2 months which he had taken as earned leave. He said he read only one or two books for each of the 8 papers because there were no more books in Hindi available on the subjects. Then there were certain notes and cram books and he was able to manage the examination with these and secure a second class. On asking a few more questions he confessed that he was ashamed that he knew no Economics and he did not understand any technical problems or the technical language of the subject. But he was qualified to be a lecturer in Economics in any one of the new colleges!

Programme of Evening Classes

The University of Indore while allowing students to appear privately had thought out, as a city university to arrange a programme of evening courses for private students during the last 3 monts. They prescribed that a minimum enrolment for any course of lectures for nearly 8 subjects was to be 60 and the fee was to be Rs. 10 a month per course for a student. Only about 20 to 25 students enrolled themselves for such courses and therefore the University gave it up partly because quite a number of students preferred private tuitions and coaching classes. Actually coaching classes have become popular and rampant in all big cities like Bombay, Poona, Delhi, Calcutta, Madras, Bangalore etc. and students confess that they got more out of these coaching classes than the regular lectures in their colleges so far as the examination was concerned. One wonders where from they get the money to pay to private tuitors and for coaching classes but since they attend these classes only for the last 3 or 4 months and since passing the examination is the only goal, they do not hesitate to borrow money for the purpose or their guardians do not hesitate to spend the last saving for such purpose.

Germ of Growth

However, there is the germ of growth of open university in most of these universities, in the sense that a large number of students utilise the library facilities provided by the university. My experience in the Indore University where the university library facilities were kept open for all private students on payment of a small fee was that a very large number of them attended the library during the last 3 months before the examination and very often there was no sitting space in the library. So improvised arrangements had to be made for the purpose and they also demanded that library be kept open early in the mornings and late in the evenings, which was done. This indicates that there is an urge to learn and prepare for the examination. The motivation is not so much knowledge as a pass at a university examination, but academically this motivation could be capitalised.

Some Constructive Suggestions for Indian Conditions

The following suggestions are made in relation to the practical organization of higher education for students appearing privately at university examinations.

1) Each university should provide facilities to students appearing privately.

2) They should enroll themselves at the beginning of the term and the university apart from conducting effective correspondence courses can charge a fee for allowing them to use the university library, arrange special lecture courses in the evening, special seminars and training courses during the term where the students at the head-quarters of the university or local colleges can provide these facilities.

3) This does not cost anything as the fee paid by the students should cover the cost of any programme; in other words the programme of such an open university should be made financially self-sufficient and the Government or the U G.C. need pay any grants only for capital expenditure on library seats, equipment and books.

4) Having left the matter of "Open University" to the universities themselves there should be a co-ordinating body like the Central Council of British Open University at the centre which should be a clearing house for various academic problems of this arrangement and they should make recommendations and suggestions which should be followed up in the universities systematically.

5) The standards of higher education have fallen because of the indifferent teaching done at the school level. With the reorganization of educational pattern into 10+2+3 at least the cycle of 10 years of schooling should be so organized as to enhance the standard of teaching and learning in the schools. These should not undertake additional responsibility of adding 11th and 12th classes but concentrate on good teaching in the 10th classes. Science teaching in higher secondary schools in M.P. has already become farcical for no practicals, though prescribed by the Board are done at many of the schools for lack of laboratory equipment and suitable teachers and yet the students pass—60 per cent to 70 per cent of them. But when they join the university 70 per cent to 80 per cent fail in the first year! Wherever the 11th class of higher secondary schools was introduced as in M.P., Delhi, Punjab, West Bengal and the old M.P. (Nagpur area) the standard of teaching in the 11th class had been very poor. The Nagpur University had compared the standard of students of the higher secondary class with that of the pre-degree class and found that the pre-degree students in the colleges always did better than the students in the 11th class of the higher secondary schools.

Junior and Community Colleges

This is not all. The fall in standards of higher education in U.P. and the present student discontent in U.P. are correlated and is to a large extent due to the introduction of the higher secondary courses of 11th and 12th classes where teachers are inadequate and incompetent, innovation and experimentation lacking, and examinations are full of mal practices. It is suggested therefore that 10 years upto the matriculation standard should be done intensively by schools and teachers are competent to teach these 10th classes. The 11th and 12th classes should not be located in the schools. They should be only in the colleges, in the 5-year college system like in the USSR and some of the European countries and there should be an introduction of Junior and Community colleges for the 11th and 12th classes combined with vocational courses. In other words, the Indian system of education has to be reorganized into a 10 years cycle of schooling as in USSR, a 2-year system of community colleges as in the USA and the 3-year degree course of a universal standard for which students who would like to appear privately could be allowed to do in a scheme of "open university" indicated.

6) The Government should not proceed with drafting of the bill unless first various questions are thrashed out by an expert committee consisting of 7 to 8 members and it should include majority of non-officials, who have been critical of these issues like Shri A. B. Shah, Dr. Amrik Singh and a few others. Unless the ground is prepared I do not think it will be worthwhile having a National Peoples University by central legislation on the broad lines of the Open University in U.K. for which they had taken 6 years as a preparation period. ●

Linguistics and English Language Curriculum

S. VELAYUDHAN

Is linguistics a subject worth serious study or an old time philology in a new garb? There is a welcome change in the universities attitude towards this subject.

Linguistics has come to stay as a full-fledged academic discipline. Questions whether it is a subject worth serious study, whether it is not the old time philology in a new garb or whether it has any relevance for a university course in languages are neither openly asked nor debated in professional circles. There was a time when teachers of English in India and abroad looked askance at it and doubted whether it had any place in an English language curriculum. There has been a welcome change in this attitude over the years. Many well meaning critics of linguistics among English teachers who had their own reasons to look sceptical at the role of linguistics have now taken a positive and helpful stand in several universities. This change in attitude has been slow but steady. From an outright rejection of the subject in the initial stages they have come round to a selective and cautious acceptance of it. This initial irrational antipathy and the subsequent good humoured tolerance for linguistics call for a rational re-appraisal of its legitimate role in English language curriculum.

Let us grant that teachers of English all over the country know what linguistics is, at least the dictionary definition of it as the scientific study of language. If it is true that we call our Bachelor's and Master's degrees in English as those in English language and literature and if we really mean what we say, the courses leading to these degrees should in fairness' sake have a language component equal to that of literature or at least a fair share of the curriculum. This article seeks to examine briefly the language component of our university courses in English and suggest what I consider a balanced approach.

The term 'language component' is used to refer to the paper or papers purported to cover the history and/or structure and usage of the languages concerned. At the first degree level most of our universities have about six or more papers covering selections from English literature and in most cases this includes a paper on either the history of English language or the history and structure of English combined. It is this paper that embodies the language component at the undergraduate level. Whether this paper should be split into two, one covering the history of English and the other covering the structure of modern English and whether both aspects are to be taught at the undergraduate level or not are matters to be debated by the academic bodies of universities. But what requires to be taught at the undergraduate level and the kind of materials to be used in teaching it, as a teacher of English sees it, is what concerns us here.

Until recently a selective outline of the history of English including some discussion of the semantic changes and some instruction in phonetic transcription to the near total exclusion of the structure and usage of modern English was all that used to be done in this paper. Anybody who has himself studied a similar paper is considered competent to teach this paper with the help of text books written decades ago. Of late, some universities have sought to change the course content by including a section on contemporary English grammar and usage, though instruction in this area continues to be imparted by inadequately trained personnel. The result of this

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The author is the Editor of Calicut University Bulletin state of affairs is that the language paper has all along remained the cinderalla of B.A. English curriculum.

The postgraduate course in English language and literature of most Indian universities is also heavily loaded in favour of literature with just one paper for language work out of eight or more papers. In most instances where the Master's syllabus is not framed as a logical sequel to the Bachelor's syllabus the content of the language paper is repetitive and hence dull. Those students who have already done B.A. English grow complacent on the strength of their inadequate knowledge of the subject and others (this applies to the universities which admit arts and science graduates, irrespective of their subjects of specialisation at the first degree level) grow apprehensive of it, torn between their loyalty to the great mass of literature they have to grapple with and the language part. The casualty in this case also is the language part. The saying 'he who pays calls the tune' could be altered to suit this context: that which carries more marks and calls for less effort commands more attention. A welcome change is noticeable in the recently revised syllabi of some universities in that they include topics such as the structure of modern English and contemporary English usage. Those who have tried their hands at teaching this course know how difficult it is to keep a mixed group of students interested in B.A.'s English and other arts subjects and B.Sc's, interested in the subject. The moment one starts a course of lectures on phonetics or grammar it is not unusual to see English B.A's start yawning (because they believe they already known their vowels and consonants and may be a couple of terms in grammar) and the others looking listlessly, trying to make head or tail out of the cardinals or the diphthongs, the bilabials or the frictionless continuants, or the kernels or transforms. The indifference and condescension of one group born out of a smattering of English grammar are matched only by the helplessness and the pervading uneasiness of the other group. If the teacher happens to be one who is least interested or inadequately trained in the subject, one can imagine the havoc wrought by such an excise in futility. And how about the text books prescribed and the topics suggested for discussion? In several instances the less said the better. I remember a teacher complaining about the lack of interest his students showed while he discussed 'accidence', meaning modern English Syntax! There is nothing seriously wrong with the old text books except that they are obsolete. My point is that modern books which incorporate recent development in linguistic theory and practice would be better. The compartmentalization of things taught where they could be integrated in a larger context needs a second look. Most of our master's syllabi offer courses in old and middle English. These are taught and learnt for their own sake, without a conscious effort to integrate them in a course in the history of the language. The belief handed down from generation to generation of English M.A. students that a paper in old English might fetch them more marks than any other paper (of course for those whose memory is strong!) is an incentive in this regard. Let me hasten to add that I am not against students opting for courses in old and middle English. What I am concerned about is that a study of old and middle English grammars cannot be a substitute for a good grounding in modern English grammar for an Indian student whose eyes are set on the class room platform next door to start teaching English the moment he receives his M.A. degree.

This discussion naturally leads us to the basic considerations I set out to present. Let us think about what could possibly be done to strengthen the language component of a Bachelor's programme in English language and literature. I believe it is useful to have a course in elementary linguistics at the undergraduate level. Such an elementary course may include topics in the nature and organization of language, elements of general phonetics as a background to the study of English phonetics and an introduction to the different approaches to the study of grammar.

The structure and organization of language may include discussion of concepts like phoneme, morpheme, immediate constituents and some practice in their analysis. The teaching of phonetics may be combined with training in the use of transcriptional systems with emphasis on a widely accepted system. *In the Indian context, I believe that it should be the* British system as embodied in the works of Jones Gimson and others. I can well anticipate the raising of eyebrows of hard core theoreticians who might be tempted to ask if the phoneme and morpheme and the I.C's and their kith and kin are still alive. They might tell you that the phonemo lies buried under the debris of taxonomic phonemics which, acccording to them, had collapsed under the weight of distinctive features and generative phonology. They might add that the morepheme and the I.C's have vanished into thin air when the transformationalists came along and bade them to vacate the linguistic scene. The more orthodox ones, respectable seniors in the English teaching profession included, might ask whether all this should be taught at the first degree level.

My answer to the first charge is that the phonemes, morphemes and similar good old concepts are very much alive. More than that they are still useful for any beginner whose awareness of the organization of lanuguage we want to stimulate with a view to help him read the growing mass of linguistic literature on his own, as and when he is ready for that. The family feuds between structuralists and transformationalists and between different brands of transformational-generativists and generative-semanticists on theoretical neceties should be left to those interested in all that. The present state of flux in grammatical studies need not be an excuse in denying an elementary course in linguistics to language students. I am convinced that basic linguistic concepts introduced in the right context would enliven the discussion of the structure of English and help students to see the organization and functioning of the linguistic system in a wider and clearer perspective. Selection of what to teach and how much of it and in what order should be left to experienced teachers. They can draw up a detailed syllabus and even prepare a short course bearing in mind the requirements of Indian undergraduate students of English. My answer to the second question whether these things should be taught is that such an elementary course will not be a waste of time and effort for the simple reason that it may serve as an adequate foundation for further study of the subject at the post-graduate level.

Assuming that a student who joins the post-graduate course in English has the background in linguistics outlined above, it would be easier to organize the language component of the master's programme. As I see it, the history of the English language may then be made part of the master's curriculum, to be followed by a thorough-going study of the structure of contemporary English. A brief course of lectures and tutorials may be organized to acquaint the students with the approaches of the traditional grammarians and the structuralists. What they have already learnt at the undergraduate level would serve as a living background for such a discussion. Structuralists interpretations of English grammar like those of James Sledd, Nelson Francis, Paul Roberts of Christophersen and Sandved could be discussed at this stage. English grammars written with a transformational-generative orientation like those of Paul Roberts (the later works), N.R. Cattell or Jacobs & Rosenbaum may also be prescribed to round off the study of grammar. An overall picture of a sane and balanced approach to the study of notions like appropriateness, usage, style and register etc. could be imparted through a discussion of topics from Randolph Quirk's excellent book, 'The Use of English'! In the area of phonetics and phonology, contrastive data involving the sound systems of the students' first language and English may be introduced with good effect at this stage. A contrastive presentation has been found to be of immense practical utility as this helps the students realize what is wrong in their own spoken English. This also provides them with necessary insight and useful data in handling remedial courses in spoken English when they start teaching.

The sum up, the course content and the text books stand in need of thorough revision wherever it is called for. The teaching of the language component is a specialized job which should be entrusted to those who have themselves studied the subject in depth and are willing to do the job. Quacks in linguistics are to be shunned as they should in other fields of knowledge. The exigencies of making and working a time table should not result in the subject being thrust upon an unwilling or ill-equipped teacher. If it happens in a paper on literature, happily, the students can go to the library and read on their own. But in phonetics and grammar they do need guidance. The blind may lead the blind in certain things but certainly not in specialised subjects. ●

TO OUR READERS

We have been really reluctant to raise the subscription of 'University News' but the rising cost of production, services and printing paper has compelled us to slightly raise the subscription with effect from January 1, 1974.

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DEPT OF CONTINUING EDUCATION

Purposes and Mode of Operation

S. KAPOOR

Over a period of time, the M. S. University of Baroda has developed a fine tradition of community service and public responsibility in addition to its commitment to quality higher education. Though the University started functioning in April, 1949, the awareness for community service and public responsibility dates far back to 1927 when a Baroda University Commission made provision for extension programmes and the library movement as a part of the University extension movement.

During the last two decades, several Faculties and Departments including the Board of Extra Mural Studies of the University have organsied programmes ranging from extension lectures, institutes and seminars to diploma and certificate courses. The developments such as the establishment of the V. T. Krishnamachari Institute of Rural Development in 1955 and its ensuing activities, and the creation and operation of the Centre for Research and Training in Secondary Education for Rural Areas (1967-1971) indicate the University's interest and responsiveness to the changing and growing needs of the surrounding communities and the society at large. All such foregoing activities of the University and related developments paved the way for the establishment of a Department of Continuing/Adult Education at the M. S. University of Baroda. In 1970, the University under the dynamic and far-sighted leadership of Justice N. K. Vakil, the then Vice-Chancellor of the University, surged forward in creating a new Department of Continuing/Adult Education with a view to develop and administer a university-wide plan of continuing education. The grant of the University Grants Commission was made available in August, 1971. The Department started functioning in September 1972 with the appointment of Dr. S. Kapoor as Professor and Head of the Department. It may be mentioned that the creation of this new Department would not have been feasible without the continued interest on the part of academics of the University who gave their general approval and lent support to the idea of establishing the new Department.

Primary Agency

The Department of Continuing/Adult Education at the M. S. University of Baroda has been conceived as a primary agency through which the University, inter alia, will offer its educational resources to appropriate adult groups, community agencies and organizations. The Department has come into existence to make the University's resources available to persons who are not regularly enrolled as full-time students (who are not day scholars) and whose higher educational needs are not met by educational and other social institutions. The role of the Department, as at present envisaged, will be to co-ordinate, guide, facilitate and provide leadership for educational programmes at the University level for adults. When found expedient, the Department will

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also take up activities of external services by way of postal courses.

In brief, the underlying objective of such an educational arm of the University is to bring Community and the University closer by providing an opportunity to the adult community to share the benefits and dividends of University—"its talent, research and resources". Such an approach is based on the following premises:—

(a) Education should be provided from early childhood through adulthood and be suited to the needs of an individual.

(b) The University is a community of scholars as well as a societal resource. It can no longer afford to remain as an ivory tower or an oasis of knowledge surrounded by a vast desert of ignorance. In order to be a dynamic social institution and an effective agent of social change, it must play an active role in the social, cultural and enonomic life of the community (ies) surrounding it, by extending its educational resources and services, utilizing the existing resources of the community and developing new resources in collaboration with various community groups and agencies.

(c) Continuing Education is based on the principle that learning is a life-long process. It is a way of life. Learning does not cease with the attainment of degrees or diplomas. It is a misnomer to believe that a person ever becomes completely educated and can acquire knowledge, relevant to him, in his life span. In today's world, phenomenal accumulation of knowledge makes continuing education still more essential as a way of life. The more man knows—the more there is to know.

(d) The strength of democracy lies in a well-informed electorate and educated citizenry. The goals of continuing education include providing life-long learning opportunities for this important resource of our democracy. The education of each individual is essential, if our society is to endure. Continuing Education does not merely emphasize the public responsibility but also stresses the education of the citizen as an individual and by way of self-responsibility, self-fulfilment and self-realization.

Programme Objectives

In the light of the philosophical framework provided above, the following specific programme objectives and activities are outlined to guide the functioning of the Department of Continuing/Adult Education. The actual operationalization of such programme objectives will be largely determined by the resources and personnel available to the Department.

Personal Growth and Enrichment

To organize courses and programmes which will provide opportunities for personal growth and enrichment whereby individuals and groups are able to pursue their interests and drive joy and satisfaction in their lives. This may include courses in broad areas of liberal education; cultural and recreational programmes; classes in art, music, and theatre appreciation; classes in dancing, painting and such other cultural and "liberating" learning experiences.

Civic Education and Public Responsibility

To organize programmes which bear directly or indirectly on civic affairs, community problems, community development and so on. The primary objective is to create a feeling of civic consciousness and develop a sense of public and social responsibility in individuals and groups towards problems of common concern. This may include courses such as civic education, voter education, consumer education, family life education, community development and problem-solving, human relations, world affairs and international relations.

Professional Advancement

To provide professionals such as engineers, doctors, lawyers, scientists, business executives, teachers, social workers, architects and others an opportunity to keep pace with the accelerating proliferation of knowledge and techiniques, and overcome obsolesence in their respective fields. This may include workshops, institutes, conferences, inservice training and retraining and refresher courses which bear any relationship to training an individual for or continuing his education in relation to his job and work.

Adult Literacy Education

To assist and promote the programmes of literary education including Functional Literacy Education undertaken by the Government and other agencies in Gujarat. This may include training of teachers and administrators in literacy management education, and methods and techniques of literacy education; production, evaluation and dissemination of literacy materials; developing guidelines for follow-up and continuity of literacy programmes.

Degree Programmes (Second Chance)

To provide guidance and opportunities to those who have been forced to discontinue their university or college education due to pressures of modern life. This may include courses and programmes leading to degrees offered through evening and/or morning college, summer and/or winter school correspondence instruction, radio, educational T.V., etc.

Professional Studies in Adult and Continuing Education

To organize professional courses at the graduate and post-graduate level in order to train individuals for careers in adult and continuing education such as administrators, teachers, counsellors, researchers, etc. These professionals may be trained for jobs in schools, colleges, universities, libraries, business and industry, government, civic organizations, etc. Such professional courses may be offered at the B.A. or Master's degree level, independently or in collaboration with other academic departments of the University on a full-time or part-time basis. The primary objective of such a programme will be to develop adult and continuing education as a profession and an academic discipline.

Consultation

(i) To provide consultative services to governmental and voluntary agencies in relation to policy formulation, programme plannig and development, education and training of personnel, delivery system in matters relating to educational opportunities for adults.

(ii) To provide consultation to other universities and colleges which propose to establish similar departments and launch programmes of continuing education.

Research and Evaluation

(i) To conduct and encourage applied and basic research in various aspects of adult and continuing education e.g. adult learning, aging, motivation, social class and its influence on learning, surveys of current programmes and research studies in the field of adult and continuing education and institutional studies.

(ii) To conduct opinion surveys in various segments of the community for constant feedback and input to programme planning and development.

(iii) To develop tools necessary for determining programme effectiveness and evaluation in the field of adult and continuing education.

(iv) To evaluate periodically the programmes and courses conducted by the Department of Continuing/Adult Education.

Publication

To engage in the publication of literature related to adult and continuing education. It may include a newsletter or a journal of continuing education in addition to publication of research studies conducted by the staff of the Department of Continuing/Adult Education and other academic Departments of the University.

Collaboration and Consortium

Wherever feasible, to develop collaborative programmes and consortiums with local, regional and national agencies, private and public, around areas of mutual interests and concern. This may include coordination or joint planning, execution of plans and programmes in the field of adult and continuing education, community and regional development.

Co-operation with Professional Groups and Associations in the Field of Adult and Continuing Education

To develop close relationship and co-operative arragements with professional groups and associations such as the Indian University Association for Continuing Education, Indian Adult Education Association, Asian South Pacific Bureau of Adult Education, International Congress of University Adult Education, International Council for Adult Education and similar other local, regional, national and international groups.

Alumni Involvement

To encourage active participation and involvement on the part of the alumni of M.S. University in the programmes and activities of the Department of Continuing/Adult Education. To develop programme and courses in consultation with the alumni groups of the University.

It may be pointed out that the above mentioned educational programmes and services will be undertaken gradually keeping in view the resources available to the Department and the felt needs of the community. The priorities will be determined in response to such needs. Moreover, above is only a suggestive list at this stage which may be expanded later on as the Department moves through an evolutionary process of organizational growth and development.

Developmental Stages

Based on our current experience, general expectations of the University and what is feasible under the existing circumstances, an attempt is being made here to identify some major emphases and developmental stages as possible guidelines for the operation of the Department. This approach could be modified or enlarged as more insightful expreience is gained. The present approach could perhaps be considered as guided by a short-term planning characterized by pragmatism.

Present Stage I (Initiation) : At present, the major emphasis of the department is on developing a university-wide, comprehensive and well coordinated progrmme of Adult and Continuing Education Services, sometimes called University Extension Services, Extra-mural Studies or Higher, Adult Education Programmes. During this stage, university level courses and educational programmes are envisaged for adults who wish to pursue their studies and interests on a part-time basis in their spare time. This stage is marked by the beginning of the process of developing an infra-structure and such other activities which are vital to the existence, growth and development of a new Department. These activities include, among others, initiating a planning process, developing an appropriate atmosphere and awareness on the campus and in the community for contnuing education programmes, an assessment of needs and resources, induction of personnel and staff development, setting up of an administrative machinery, etc. Some of these activities will continue on an ongoing basis while others will be replaced by new ones. All these efforts will have to be sustained over a period of time till the department becomes a viable organisation on the campus. During this stage, preparatory efforts will be initiated for the following stage.

Stage II (Expansion and Growth) : Whereas the educational activities and programmes started earlier (University Extension _ and others) will continue and, hopefully, many more will be added, the major emphasis during the second stage will be on developing adult and continuing education as an academic discipline.

In addition to the above, it is hoped that the Department will gradually move into some specialized areas such as adult literacy education research on an ongoing basis in various fields of adult and continuing education, correspondence education, in special fields, problem focused continuing education courses and programmes, etc. Special cells manned by qualified staff are expected to be created within the Department.

Stage III (Evaluation) : Evaluation is a continuous process and will, therefore, be an integral part of the Department's functioning. In addition to self-evaluation, it will be desirable on the part of the University to evaluate systematically the Department—its place, functioning, goals, roles and responsibilities, and give proper guidance and future direction.

It may be mentioned that, at this stage, it is not feasible to detail the chronology of events and growth periods in the life of Department. However the Department will be guided, as far as possible, by the above framework and other guidelines available to the Department from the University from time to time.

Need for a University-wide Approach

The Department has been created with a view to develop and administer a university-wide plan of continuing education keeping in view the existing resources and capabilities of the university and the need and interests of individuals, professional and business groups and community agencies. A university-wide approach emphasizing a well-coordinated plan is essential to maximise the efforts on the part of the University for better coverage and outreach in the community and to utilize the existing resources on the campus, though limited, in the most effective manner. The unitary character of our University with its own teaching Faculties and Departments provides an excellent opportunity for developing a coordinated and comprehensive university-wide plan of continuing education and for experimenting with interdisciplinary approaches to solving human problems. It is felt that the scope of developing and administering such a plan is all the better at M.S. University as compared to an affiliating type of university.

The following operational guidelines will be observed by the Department of Continuing Education in relation to academic Departments of the University and their extension type activities:—

- (i) By invitation, to work with other Departments of the University in planning, implementing and evaluating educational programmes of extension or extramural nature initiated by them.
- (ii) To develop continuing education programmes and courses in collaboration with University Departments for target groups which have not yet been reached.
- (iii) To coordinate activities and programmes of continuing education at the University level and serve as a clearing house for all continuing education programmes going on at the University.
- (iv) To establish a Liaison Committe or Committes widely representing various Faculties and Departments with a view to develop and recommend university-wide plans and policies for Continuing Education programmes.

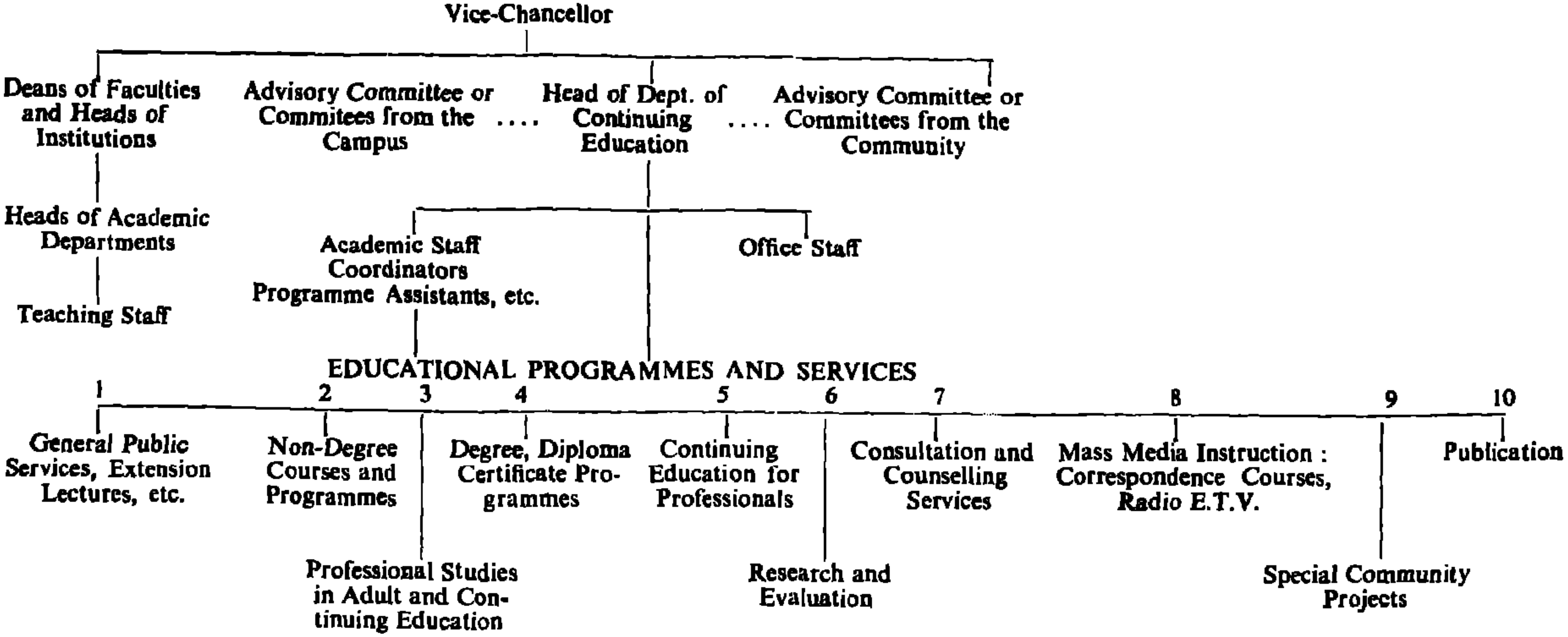
Services Available to Departments and Teachers

The following services are envisioned to be provided, within the budgetary provisions of the Department of Continuing/Adult Education, to instructors and University Departments wishing to offer courses and programmes in the Department of Continuing/Adult Education.

1. Administrative and management services including admission procedures, registration, record keeping, etc.;
2. Mimeographing and duplicating services for developing course outlines and manuals for class distribution;
3. Publicity related to courses;
4. Programme planning and development (curriculum planning);
5. Instructional media services (Audio-Visual Aids);
6. Making appropriate arragements for classes, seminars and residential arragements for participants, if necessary;
7. Services of resource persons as guest speakers or consultants for courses and programmes in the area of Continuing/Adult Education (to a certain extent);
8. Class material: The Department may provide limited assistance toward the purchase of materials (other than deadstock items) in certain courses to be used by the teacher in the class only for instructional or demonstration purposes;
9. Counselling and guidance services for adult students;
10. Library and reference services (to a limited extent);
11. Research and evaluation : conducting surveys and studies projecting needs and trends in different areas for programme planning and development in Continuing/Adult Education;
12. Grantsmanship : writing proposals for funding sources other than the University;
13. Consultative services;
14. Publication of research studies and proceeding of institutes, seminars and conferences organized in collaboration with other Departments of the University.

Department and its Structure

The Department of Continuing/Adult Education was created under Syndicate's Resolution No. 2 (10) dated 25th September, *1971*. The University received a grant from the University Grants Commission on 75:25 per cent basis for establishing the Department. The academic staff provided under the scheme includes one Professor, one Reader and three Lecturers. The Department works under the direct control of the Vice-Chancellor. A tentative organizational structure and services is as shown below:


Vice-Chancellor
Deans of Faculties and Heads of Institutions
Advisory Committee or Commitees from the Campus ....
Head of Dept. of Continuing Education
.... Advisory Committee or Committees from the Community
Heads of Academic Departments
Teaching Staff
Academic Staff Coordinators Programme Assistants, etc.
Office Staff
EDUCATIONAL PROGRAMMES AND SERVICES
1 General Public Services, Extension Lectures, etc.
2 Non-Degree Courses and Programmes
3 Professional Studies in Adult and Continuing Education
4 Degree, Diploma Certificate Programmes
5 Continuing Education for Professionals
6 Research and Evaluation
7 Consultation and Counselling Services
8 Mass Media Instruction : Correspondence Courses, Radio E.T.V.
9 Special Community Projects
10 Publication

Development of Physical Education in Bihar

D. N. SINGH

Physical Education in some form is a basic need for all—for individual and collective fitness. A nation with physically fit individuals is bound to be a strong nation capable of doing all kinds of work for national development. Hence physical education is to be treated as a nation-building activity. Scientific physical education is based on anatomy, physiology, kinesiology, psychology, sociology, education, physics, chemistry, mathematics, nutrition and hygiene. It is recognised as an essential and integral part of education. Education through physical activities is necessary for the development of total personality of the child.

The programme of physical education consists of all kinds of games and sports, gymnastics, calisthenics, combatives, folk dances, stunts, tumbling, pyramids and yogic exercises etc. These programmes of physical education are taught on theoretical side with scientific principles of education, psychology and health education, history, methods and techniques so as to have better achievement of the individual.

Sports and games form a part of physical education. Mere witnessing of games and sports, listening to the sports relays on the radio or only periodic interest in these do not form full physical education and culture, nor over emphasis on games and sports should be a hindrance to other types of education. In order to develop sports and games and other activities in schools and colleges and to achieve its objective in a scientific, ever progressive and balanced manner it is of great necessity that physical education be introduced as an academic subject (with its theory and practice) at par with any other optional or elective subject in I.A. and B.A. with Honours also. Recognition of physical education as an academic subject from I.A. to M.A. stage will create interest, inspiration and utility for offering this subject by a sizeable number of students at the university stage—may be physical education may become like one of the professional subjects such as engineering and medicine as many persons may like to choose it as qualification to enter into a profession. Thus there could be an opening to have physical education as an independant subject in M.A. This is a subject which will increase qualities like strength, courage, valour, quick thinking, fair play and discipline among the youth which are much needed in addition to the impetus it may give to allied extra-curricular activities to a larger percentage of students in schools and colleges who may be prompted towards better utilisation of their spare time in healthier activities.

A scheme and syllabi for the introduction of Physical Education as an optional subject at I.A. and B.A. and an additional subject at I.A./I.Sc. and B.A./B.Sc. is already under consideration of the Bhagalpur University in Bihar.

A few years before India's independence, the Government of India appointed the Health Survey and Development Committee in October 1943 under the chairmanship of Sir Joseph Bhore. This Committee, popularly know as the Bhore Committee, prepared its report in four volumes which was published in 1946. Volume II of this report deals with the recommendations of the Committee. Chapter VII of this Volume deals exclusively with the recommendations for the development of physical education. With the attainment of independence in 1947, the Government of India appointed important commissions to reform education to meet the changing needs of the country. Mention may be made of the Radhakrishnan Commission on University Education (1949), Lakshmanswamy Mudaliar Commission on Secondary Eduation (1953), and Kothari Commission for all levels of education (1966). These Commissions made various recommendations for the development of physical education in the country. The Kunzru Committee (under the

> ***Over emphasis on sports should not be a hindrance to other types of education. Education through physical activities is necessary for the proper development of personality of the child. A nation with physically fit individuals is bound to be a strong nation .....***

The author is the Principal of Bihar College of Engineering, Patna.

chairmanship of Dr. Hriday Nath Kunzru) appointed by the Government of India, Ministry of Education tried to integrate various youth activities and schemes at the secondary education level and gave the country the National Fitness Corps Programme of Physical Education. The Deshmukh Committee (1967) made excellent recommendations to organise physical education for the university students. Besides, the Union Ministry of Education, Government of India through its various schemes, seminars, national awards in physical efficiency and sports have shown the importance and necessity of the development of physical education including games and sports.

BIHAR ASSOCIATION OF PHYSICAL EDUCATION AND RECREATION

The Bihar Association of Physical Education and Recreation, founded in 1947, was alive to the above developments in keeping with its following important aims and objects: i) To advance the cause of Scientific National Physical Education among its members and public by means of conferences, lectures, radio talks, pictures, films, demonstration and publication of magazines, newspapers, periodicals, charts, statistics, books of reference etc. throughout the State; ii) To draw the attention of the Government and the universities on all matters relating to the physical welfare of the citizens of the State by means of comprehensive programmes of Scientific National Physical Education; iii) To encourage promotion of activities of National Physical Education suitable for Indian conditions according to the needs, capacity and interest of the people of different areas, tastes, and means through *vyayamshalas*, *akharas*, clubs, associations etc; iv) To encourage study of literature on modern physical education and to prepare some literature of their own and v) To suggest and advocate legislative and other measures for reforms affecting the progress of physical education and to obtain changes and improvement in laws relating thereto.

Besides the above aims and objects, the Bihar Mahamandal had clearly defined its policy in the following words: "Physical education is not a matter of mere drill and gymnastics for building up muscular bodies but it is an education of wholeman based on scientific principles according to the needs and capacity as well as interest of individuals to keep men and women physically fit, mentally alert, morally advanced so that they serve their country to the best of their ability as better citizens both as civilians and soldiers after their school life. National leaders all over India recognise that sound minds cannot exist in weak bodies and they have come to the conclusion that physical education and recreation are the basic needs of human existence. Hence recognition of the closest association of body and mind should be the ideal of Physical Education."

As a part of their aims and objects and policy, the Bihar Association of Physical Education and Recreation during its past twentyseven years have submitted several schemes to the Government of Bihar for the development of physical education in the State. With the efforts of the Mahamandal and the cooperation of the State Government, the Government College of Health & Physical Education was started at Patna in 1951. Posts of Deputy Superintendent of Physical Education at district level and a post of Lady Superintendent of Physical Education on State level were created by the Government of Bihar. The report read by Dr. Narain Prasad, former Vice-President of the Association before the Governor of Bihar Mr. R.D. Bhandare at a special function of the Association on 3rd September, 1973 reveals the up-to-date important work done by the Mahamandal. This report in the end also mentions the memorandum on physical education which was submitted to the Governor of Bihar on August 20, 1973 when a delegation headed by the President of the Association (Mahamandal), Sri Nitishwar Prasad Singh M.L.A. (now State Minister) met the Governor.

The delegation of the Mahamandal stressed the following two points and the Governor of Bihar was pleased to assure to take up this matter in the Vice-Chancellors' Conference of all the Universities of the State :

1. **Introduction of Physical Education as an academic subject at par with other subjects:**

   Part I. To introduce Physical Education as an optional/combination subject from Matric to B.A. (including Honours) and also as an independent subject of Physical Education at M.A. stage.

   Part II. To introduce Physical Education as a compulsory participation activity from Primary to University stage for those who may not offer Physical Education as an optional subject from Matric onwards.

   Part III. To introduce Physical Education as an additional subject from Matric to B.A. like Sanskrit.

2. **Improvement of Physical Education as a professional subject**

   Part I. Development of Govt. College of Physical Education, Bihar, Patna.

   Part II. Introduction of one year M.P. Ed. (Master of Physical Education) course like M.Ed course.

   Part III. Changing the existing Dip. P. Ed. (D. P. Ed.) course of one year to one year B.P. Ed. (Bachelor of Physical Education) course like B. Ed. course.

The above suggestions of the Mahamandal though related to Bihar, can be applicable to other States also. The Mahamandal will consider its efforts fruitful if the Government and the Universities take steps for doing the needful. ●

Round Up

Continuing Education Courses

The Department of Mining of the Indian School of Mines, Dhanbad recently organised two Continuing Educational Programmes on: Basic and Applied Rock Mechanics and Intensive Course on Mine Ventilation for the benefit of the mining industry personnel.

The course on "Basic and Applied Rock Mechanics," which was co-sponsored by the Mining and Metallurgy Division of the Institution of Engineers (India), was held from August 28 to September 10, 1973. The course was attended by twenty participants amongst whom were scientists from the Central Mining Research Station, as well as mining engineers from the Directorate-General of Mines Safety, the Bharat Coking Coal Ltd., the National Mineral Development Corporation, the Hindustan Zinc Ltd., the Coal Mines Authority Ltd and the Singareni Collieries Co. Ltd. The faculty for the course included Professor A. K. Ghosh, Dr S. P. Banerjee, Dr S. K. Bordia and Shri V. P. Singh. Professor Ghosh was the Course Coordinator. Besides covering basic rock mechanics theory, participants attended lectures on practical applications of rock mechanics including pillar design and design of supports and carried out laboratory exercises and measurements in the Rock Mechanics Laboratory of the Department of Mining. A visit to the Rock Mechanics Laboratory of the Central Mining Research Station was also arranged.

The "Intensive Course on Mine Ventilation" which was held from September 12 to 18 was attended by twentyseven participants drawn from the Directorate-General of Mines Safety, the Bharat Coking Coal Ltd., the Coal Mines Authority Ltd., the Singareni Collieries Co. Ltd., and Fan Manufacturers. Shri N. K. Patnaik, Assistant Professor in the Department of Mining was the Course Coordinator and main lecturer. Amongst other members of the faculty were Dr A. K. Ghosh and Shri K. M. Kaiser from Central Mining Research Station, Dr S. P. Banerjee from the Directorate of Practical Training in Mining and Professor A. K. Ghosh of Indian School of Mines. Besides extensive brush-up on basic ventilation theory and practice, the participants went through graded exercises of practical work of mine ventilation and environmental engineering. Experience was gained in the handling of ventilation network-analyser, different types of methene-measuring devices, dust-measuring instruments including the Gravimetric Sampler, and in carrying out fan-performance tests.

The Indian School of Mines is planning to intensify its activities relating to Continuing Education in Functional Areas for practising engineers.

WORKSHOP ON POPULATION EDUCATION

Under the auspices of the Population Studies Centre of Sri Venkateswara University, a Workshop on Population Education was organised for High School and Junior College Teachers from September 19 to 21, 1973. Twenty-five teachers from High Schools and Junior Colleges of the five districts of University Area participated in the workshop.

Objectives : The objectives of the workshop were as follows : To introduce the concept and objectives of Population Education; to introduce the teaching units on Population Education; to prepare a plan for integrating Population Education at High School and Junior College level; to prepare a plan for resource material on Population Educa-

U.K. Universities Enter Big Business

British universities have entered the field of big business and are financing research projects from profits made by their own companies.

About twenty universities have set up profit-making limited companies, centres or units, while at least another thirteen provide industrial liaison and consultancy services.

At the Imperial College of Science and Technology, London, more than 200 of the academic staff—about one-third of the total—hold 465 industrial consultancies and 38 directorships of companies.

Universities which have set up limited companies include those of Bath, Leeds and Birmingham, and Queen Mary College, London University.

Profits, believed to be running into hundreds of thousands of pounds, are ploughed back into the universities' own research projects.

According to the Rector of Imperial College, Lord Penney, £ 570,000 was brought to the college from industry during the academic year 1971-72.

tion and to prepare an Extension Plan on Population Education.

The workshop was inaguarated by Dr K. N. Rao, Honorary Consultant of Population Studies Centre, S. V. University on 19th September, 1973. Dr Rao in his inaugural speech emphasised the need for the Population Education to save the next generation from the disastrous consequences of over population.

Dr D. Jaganatha Reddy, Vice-Chancellor, presided over the function. In his presidential address, he emphasised the need for a new approach for the solution of human problems. By the help of slides, Dr Reddy explained the consequences of the rapidly growing population in the world. To save them from its adverse effects, he emphasised that there should be provision for population Education at all levels.

For achieving the objectives of the workshop the participants were divided into two groups which were as follows : 1. **High School Group** : Chairman—Dr Vanajakshi D. E. O., Anantapur; Rapporteur—Dr Khaja Peer, Assistant Director, Adult Education; 2. **Junior College Group** : Chairman—Dr Rajeswari Murthy, Principal, S. P. W. College: Sri Sridhar Swamy, S.C.E.R.T, Hyderabad. Rapporteur — Dr Ratna, S. P. W. College.

The Group reports were finalised under the Chairmanship of Dr K. N. Rao, Honorary Consultant. Population Studies Centre. The following are the main recommendations of the groups:

High School Group : The Group recommended that Population Education should be imparted to the High School students; the high school syllabi should contain the systematic and analytical presentation of the Population Dynamics both from the point of view of macro and micro approaches; the unit on Population Education may stimulate among the students that there is over population; the following topics on Population Education should be integrated with the syllabus: (a) Magnitude of population, (b) Rate of growth of population, (c) Age and sex composition of population; the content of Population Education may be integrated with social studies and biology; the audio visual aids regarding Population Education may be supplied by the Population Studies Centre to the educational institutions; social studies club, science club, essay writing competitions, lectures etc. may be organised in schools on Population Education; the teachers for teaching Population Education should be trained by Population Studies Centre; the Population Studies Centre should help teachers for preparing teaching units; supplementary reading material on Population Education should be prepared in Telugu by the Population Studies Centre for distribution among the schools; Population Studies Centre has to supply teachers hand books and resource material on Population Education for preparing teaching units; for testing attitudes of students on Population Education a suitable device for assessment may be adopted by the Population Studies Centre; the Secretary, Zilla Parishad should organise conferences of teachers and Head Masters for emphasising the necessity of Population Education. Efforts at parent-teacher level may also be taken up; in High School syllabus Population Education may be integrated with social studies more effectively.

Junior College Group : Population Explosion and its consequences to be incorporated in the syllabus. Those topics which can not be incorporated in the syllabi, should be communicated to the students through extension lectures, group discussions, seminars etc; discussion on Denographic topics should be held for few hours in a week in each educational institution under the programme of General education; orientation or short term courses on Population Education should be conducted for Head Masters, Teachers, Principals and Lecturers; Year Books and Census Reports should be supplied in sufficient numbers to every educational institution; Population Education shall be one of the service functions of Junior Colleges. It may be offered under the programme of community service and adult education; at the Junior Colleges levels the Population Education can be integrated with Economics, Zoology, Home Science, Civics, Geography, Statistics, Telugu and English. In the Extension on Work on Population Education, it was suggested to have Research Studies to know about the awareness; short programmes such as group discussions, seminars and demonstration programmes relating to Population Education may be organised in the Junior Colleges; audio visual material such as charts, slides, puppet shows, songs, film shows, exhibitions, radio talk etc. and other methods may be used for doing extension work on Population Education; involvement of social organisations for undertaking Population Education programmes was also suggested.

SYSTEMS ENGINEERING EDUCATION

The International Federation of Operational Research Societies, the International Federation of Automatic Control and Committee on Education, the Committee on Systems Engineering would be jointly holding a seminar in New Delhi from November 4 to 7 on Systems Engineering Education in developing nations. The various topics which are likely to be discussed by the seminar would include the following : Curricula for interdisciplinary degrees in systems science and systems analysis as applicable to educational institutions in developing countries. Scope, format and experience in teaching systems theory; applied systems analysis; dynamic modelling and simulation; mathematical programming; decision theory; control theory; computer-aided planning and management for undergraduates and graduates in engineering, agriculture, environment management, economy, rural, urban planning and political science.

King Birendra at Pantnagar

King Birendra of Nepal with Dr. Karan Singh, Union Minister of Tourism and Dr. D. P. Singh Vice-Chancellor of Pantnagar University on arrival at Pantnagar air port

King Birendra Bir Bikram Shah Dev of Nepal paid a visit to the G.B. Pant University of Agriculture and Technology, Pantnagar during his recent visit to India. Accompained among others by the Union Minister of Civil Aviation and Tourism, Dr. Karan Singh and Governors of Assam and Uttar Pradesh he was received at the Pantnagar airport by Dr. D.P. Singh, Vice-Chancellor of the University. The King visited Crop Research Station, Livestock Research Station and Seed Processing Plant at the University.

During the visit to the Crop Research Station, King Birendra met a party of trainees from Nepal undergoing a six-month training in paddy cultivation at Pantnagar and was impressed by the high level of training being imparted to them. At the Livestock Research Station, the King showed keen interest in various cross-breeding programmes underway over there. He was told that the crossbred animals have high yield potential and do well under all conditions. King Birendra was also much impressed by the seed production programme of the University. He was told by Dr. D.P. Singh, Vice-Chancellor that the University has five modern seed processing plants which are the biggest of their kind in South-East Asia. It may be recalled that Pantnagar supplies quality seeds worth about Rs. 25 to 30 lakhs to Nepal every year.

The King was presented welcome address by Dr. D. P. Singh, Vice-Chancellor in silver casket at the Pantnagar airport. The King felt that agricultural universities like Pantnagar can play an important role in bringing about agricultural revolution in the developing countries.

INDIA FOUNDATION SCHOLARSHIPS

India Foundation will grant scholarships and travel grants to Indian students for higher studies in universities abroad during 1974-1975. The scholarships are meant for postgraduate study in Science, Social Sciences or Technology in the U.S.A., practical training in town planning and city architecture with Boroughs in England and postgraduate course in exploration and development of ground water resources in Israel.

The travel grants will consist of 15 interest free loans for air passages to any part of the world and 7 free passages, four to North America and three to any Western Europe port. These travel grants will be offered to students who obtain admission to foreign universities on their own responsibility.

The forms can be submitted to the Executive Secretary of the India Foundation at 595, Budhwar Peth (Sakal Office Building), Poona-2. The application forms would be available on request upto November 15. Students seeking travel grants are advised to contact the Foundation only after finalisation of their admissions to foreign universities but not later than April 30.

TV FILM LABORATORY INAUGURATED

The Minister of State for Information and Broadcasting, Mr. I. K. Gujral, recently inaugurated at New Delhi the Asian *Film Laboratories* which will offer production facilities to independent producers. It will produce a series of pilot programmes for TV stations in India and abroad.

With the commissioning of the country's first "compact 16MM TV film-processor" and the simultaneous launching of the first TV film laboratory in New Delhi, it may now be possible for independent producers to undertake production of budget-oriented TV films in India.

The success of TV programmes could be ensured when these were produced not only by the Government but by others as well.

The Minister hoped that there would be more such indigenously produced machines to give a boost to private production of TV programmes.

Jagjivan Ram Favours Student Participation

Mr. Jagjivan Ram, Defence Minister, while delivering the Convocation Address of the Andhra University at Waltair expressed his view in favour of students being given a share in decision-making processes of the university. "There is no reason why we should not trust them beyond the management of hostels, unions, welfare programmes and other extra curricular activities", he observed. He wanted students and teachers to show a way out of the problem of violence and unrest, which had turned campuses into breeding grounds for something far removed from normal sanity.

Reminding the students, he pointed out that even the poor society contributes to the university education. More than 96 per cent of boys and girls in 17-24 age group did not have the opportunity for higher education. 80 per cent of the postgraduates and graduates belonged to the top 20 per cent of the society. Problems of the university should be solved by teachers and students themselves without any outside interference or intervention.

NEED FOR PRAGMATIC APPROACH : SUKHADIA

Governor Sukhadia inaugurated the 10th anniversary of the Regional Institute of English (South India) and also the seminar on Harmonising the Language and Literature in the Production of textbooks. He said there was need for a pragmatic approach in regard to study of the English language, which had become quite indispensable for higher education.

According to Mr. Sukhadia, the basic objective should be made clear before deciding on production of proper textbooks for study of English because education was no longer selective or restricted to any section of society.

The State Education Minister, Mr. Badrinarayan, who presided, said there was a great need to change the teaching pattern of languages. The pattern evolved should enable even "common folk" to learn the language.

Former Vice-Chancellor Gokak in his address said a distinction should have to be made between the teaching of the English language and its harmonising influence on students. The gap between textbooks and the ability of students should be reduced.

Cost of A Doctor

The Gujarat State Government spends Rs. 24,147 on a medical student till the completion of the entire course. The amount which was Rs. 14,691 in 1961 had increased three-fold in 12 years.

Dr. Thakorbhai Patel, Health Minister, observed that doctors should discharge their duty to society and they should come forward to serve the masses in rural areas. The number of medical seats in colleges had gone up from 330 in 1961 to 625 in 1973.

"How will it ensure campus peace ? Have you not heard of letter-bombs ?"

Need for Change in Education System

Mr. G. Ramachandran, Chairman of the Khadi and Gramodyog Board while delivering the 26th Convocation Address at the Gujarat Vidhyapith in Ahmedabad expressed the view that India's future would be at stake if the present educational system was continued. He called upon the authorities to seriously consider the fact that at a terrific cost the country was maintaining the present "wasteful" educational system. The present outmoded system of education was manufacturing year after year a vast number of boys and girls, who grow up as aliens in their own country without roots in the culture and history of India. He recalled a remark made by the Prime Minister, Mrs. Indira Gandhi, when she delivered the Convocation Address at Gandhidham last year. She had then said one major mistake independent India had made was not to change the current educational system radically.

Speaking on his experience as Director of Gandhigram for many years, he admitted how difficult it was for any institution of higher education to stand for sarvodaya and satyagraha without reservation and yet give the student the academic descipline and attainment without which no university could function today.

Mr. Morarji Desai who presided over the Convocation as Chancellor of the Vidyapith said that basic education was the only answer to the maladies in the field of education.

One-hundred and ninety-eight students received degrees at the Convocation.

HISTORY TEACHING AND RESEARCH

A seminar on History Teaching and Research was organised at Rajkot by the Saurashtra University. Mr. R.G. Parikh of the Postgraduate Centre in History was the Director of the seminar. The meet was financed by the University Grants Commission. The seminar was intended for the history teachers of the affiliated colleges.

Twentyone teachers of history participated in the seminar. Dr. P.N. Mehta of Baroda spoke on Modern Indian Archaeology and its study, Some Problems in Ancient Indian History and Recent Excavations at Champaner and their study. Prof. R.G. Parikh of Rajkot spoke on Regional History and writing; while Dr. R.K. Dharaiya of Ahmedabad talked on Teaching and Problems in Medieval Indian History: Mughal and Maratha Periods; Prof. D.V. Bhatt of Rajkot spoke on Teaching of European History and problems; Prof. P.B. Zala of Junagadh stressed on Judgements in History; and Prof. S.V. Jani of Rajkot spoke on a Comparative Approach to American History.

These lectures resulted in lively and invigorating discussions covering different aspects of teaching and researches in History.

V. C. ATTENDS ASIA PARTNERSHIP WEEK

The Vice-Chancellor of Osmania University, Mr. N. Narotham Reddy, alongwith Dr. M.R. Saxena, Head of the Department of Botany and Dr. M.S. Iyengar, Professor of Economics attended Asia Partnership Week at the University of Ruhr, Bochum in Germany in October.

Personal

1. Mr. I. J. Patel has taken over as the Vice-Chancellor of Gujarat University w.e.f. October 23, 1973.
2. Dr. Ravi Prakasa has taken over as the Vice-Chancellor of Bhopal University w.e.f. October 11, 1973.
3. Mr. G.N. Tandon has been appointed Vice-Chancellor of Jiwaji University.
4. Dr. Masood Husain Khan has been appointed Vice-Chancellor of Jamia Millia, Delhi.
5. Dr. C. Gopalan has been appointed Director-General of the Indian Council of Medical Research.

At the inauguration of the Workshop on Population Education organised by the Sri Venkateswara University. Left to right are: Dr. K.N. Rao, Hon. Consultant, Population Studies Centre, S.V. University, Dr. D. Jaganatha Reddy, Vice-Chancellor, Sri M.K. Ramakrishnan Registrar, Dr. M. V. Rama Sarma, Principal, S.V.U. College. Sri K. Raghava Reddy Development Officer.

Kothari for Changes in I.N.S.A. Structure

Prof. D. S. Kothari, President of the Indian National Science Academy pleaded for certain major changes in the structure and functioning of the Academy. He called upon the Government for more funds to start basic research in various specialities. The current grant of Rs. 12 lakh is inadequate and he wanted it to be raised to a minimum of Rs. 50 lakhs. In his presidential address, to the annual general meeting of INSA, Dr. Kothari proposed the raising of the number of fellows of the academy by increasing the annual intake by 15 on the lines of the Royal Society, London and the U.S. National Academy of Sciences in enlarging the intake. Special emphasis should be given to clinical sciences and the social and behavioural sciences. The Academy has 359 members now but the number of scientists engaged in research has increased ten-fold since independence. The number of science teachers in the universities is now about the same as the total number of science students 30 years ago.

The election to the Academy "ought to be a kind of national recognition of outstanding scientific achievement, and any compromise on the quality of fellowship would be to undermine the very basis of the academy's existence and rational."

Dr. Kothari said that the academy proposes to have a second level of fellowship, to be called associate fellowship to encourage young scientists. While the number of associate fellows could be limited to 30, a good many of them should be elected to full fellowship in course of time. Dr. Kothari also revealed that the Academy was thinking of instituting academy medals for young scientists.

The Academy announced the election of the following 15 scientists to the fellowship of the Academy:

Prof. M. K. Das Gupta of Calcutta University; Prof. M.G. Deo of All India Institute of Medical Sciences; Dr. H. K. Jain of Indian Agricultural Research Institute; Prof. S. K. Joshi of University of Roorkee; Dr. P. Koteswaran, Director General of Indian Meteriological Department; Prof. R. S. Kushwaha of University of Jodhpur; Dr. H. B. Mathur of National Chemical Laboratory; Dr. B. R. Murthy of Indian Agricultural Research Institute; Prof. K. Ramachandra of Tata Institute of Fundamental Research; Dr. A. Ramachandran, Secretary, Department of Science and Technology; Prof. C. N. R. Rao of Indian Institute of Technology, Kanpur; Prof. S. N. Sarkar of Indian School of Mines, Dhanbad; Prof. B. I. Sundararaj of University of Delhi; Prof. G.P. Talwar of All India Institute of Medical Sciences.

GUJARAT VARSITY ACT REVISED

The Government of Gujarat on a report by the State Level Commission has amended the Gujarat University Act. The revised legislation gives greater representation to the teachers than before and also provides for representation of twelve students on a 146-member court of the University. Elections to the various constituencies of the University court have been held in accordance with the revised legislation. The new Act will usher in an era of rapid academic progress in the University.

"When mother studied here, she was taught to make cakes and bake bread; now we're taught the dignity of manual labour . . ."

ICMR TO BE REORGANISED

There is a proposal to re-structure the Indian Council of Medical Research and a high level technical committee is expected to be appointed to go into the working of the Council.

The ICMR, a registered society, manages seven national laboratories doing research in specialised areas of medical sciences. They are: the National Institute of Nutrition, Hyderabad; National Institute of Occupational Health, Ahmedabad; Virus Research Institute, Poona; Indian Registry of Pathology, Delhi; Tuberculosis and Chemotherapy Centre, Madras; Cholera Control Centre, Calcutta and Institute of Reproductive Physiology, Bombay.

The Planning Commission has tentatively allocated Rs. 13 crores for ICMR operations during the Fifth Plan. The Commission is in favour of ICMR taking up investigations on poor man's diseases and not only on the ailments of the affluent. Every year, about Rs. 70 lakhs is being spent on the schemes undertaken by research groups or individual scientists.

Dr. P.N. Wahi, Director-General of the Council would be retiring in February and Dr. C. Gopalan, Director of the National Institute of Nutrition, Hyderabad has been named to succeed him.

TEACHERS' OWN LIBRARY

The Saurashtra University has evolved a novel scheme under which teachers who purchase books are given equal amount *from the university as subsidy* amounting to not more than Rs. 100. Thus if a teacher purchases books worth Rs. 200 he gets a subsidy of Rs. 100. The books are purchased by the University on the recommendations of the teacher concerned every year. The University sanctions subsidy under this head amounting to rupees ten thousand. This scheme is being extended to the teachers of affiliated colleges as well.

CLASSIFIED ADVERTISEMENTS

UNIVERSITY OF SAUGAR
Advertisement No. R. 6/73

Applications are invited for the post of a **Professor** in the University College of Education so as to reach the undersigned not later than **20th November 1973** on a prescribed form to be had from the University Office. Applications for the prescribed form should accompany a self-addressed envelope and a postal order of Rs. 5.00 as application fee.

2. Candidates already in service should apply through proper channel with a testimonial from the head of the institution about their work and conduct. Government servants working in colleges are eligible to apply. If selected, they will be deputed on usual terms without deputation allowance.

3. Candidates selected for interview will have to come to Sagar at their own expense and bring with them their original degree, research papers etc.

4. The post is permanent. The period of probation will be two years which may be extended to three years at the discretion of the Executive Council. Service during the period of probation may be terminated without notice and without assigning any reason.

5. **Pay Scale** : Rs. 550-550-30-700-700-EB-30-850-25-950 with D.A. and other allowances according to rules.

6. **Qualifications** : At least a First class or Second class Master's degree in Psychology and Master's degree in Education with ten years of teaching experience of which at least five should be in a training institution.

Desirable : Published works and guiding research in Education.

Special Qualification : A candidate possessing teaching experience of 'Research Methodology' and 'Statistics' to post-graduate classes will be given preference.

COL. H. S. CHANDELE
REGISTRAR

SHIVAJI UNIVERSITY
KOLHAPUR (Maharashtra State)

Applications are invited for the following posts:—

(1) **Professor—Chemistry** (Organic or Inorganic or Physical)
(2) **Professor—Zoology** (Cell-Biology or Physiology)
(3) **Professor—Botany** (Mycology & Plant Pathology or Plant Physiology)
(4) **Professor—Physics** (Materials Science or Wireless & Electronics or Theretical Physics or Applied Solid State Physics)
(5) **Professor—Mathematics**
(6) **Professor—History**
(7) **Professor—Economics**
(8) **Reader—Sociology**
(9) **Lecturer—Geography**

Pay Scales :

Professor : Rs. 1100-50-1300-60-1600
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Qualifications & Experience:

(1) **Professor** : First or Second class Master's degree and Doctorate degree in the subject of a statutory Indian or Foreign University of repute.

Teaching Post-graduate classes for *about ten years and guiding successfully* some Ph.D. students. Published research work of merit will receive due consideration.

(2) **Reader** : (*a*) A Doctorate degree of any recognised University Indian or Foreign with at least Second class either at Bachelor's or Master's degree and published independent research work;

Or

(*b*) Published independent research work of acknowledged merit (books and papers) with at least Master's degree in Second class of any recognised University.

(*c*) Seven years experience of teaching Post-graduate classes.

Or

(*d*) Independent research work of acknowledged merit on their own initiative.

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Or

(*b*) A Doctorate degree with at least Second class Bachelor's degree.

Or

(*c*) Any other equivalent degree or degrees of an Indian or Foreign University.

(*d*) Five years' experience of teaching graduate classes at the special or principle level (wherever applicable).

(Note : Cases of highly qualified persons holding Doctorate degree and having special qualities will be considered on their own merits).

Age Limit:

The upper age limit for appointment to teaching posts under the University is ordinarily 45 years but it may be relaxed in special cases.

Probation:

Selected candidates will be on probation for a period of two years at the first instance. If necessary the same will be extended by a year or two.

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Seven copies of applications along with necessary enclosures should reach the Registrar, Shivaji University, Vidyanagar, Kolhapur-416004, on or before **25th November, 1973**

USHA ITHAPE
REGISTRAR

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No. 7957/TDS Dated 20-10-73
Second Corrigendum to Advertisement No. 2798/TDS dt. 7-5-73

The last date of receipt of applications for the post of Reader in Civil Engineering is extended from 25-6-73 to 15-11-73.

B. MISRA
REGISTRAR

THESES OF THE MONTH

PHYSICAL SCIENCES

Mathematics

1. Chaturvedi, Harishchander. Some mixed boundary value problems of electrostatics. Vikram University.

2. Chowdhry, Radhey Shyam. On summability of ultraspherical Jacobi and Laguerre expansions. Vikram University.

3. Jatva, Lakshminarayan. Summability of fourier series and its conjugate series. Vikram University.

4. Narasingarao, Gandikota Lakshmi. Study of certain distributional transforms. Ranchi University.

5. Premchand. Absolute Riesz summability and its application to fourier series and allied series. *D.Sc.* Vikram University.

Statistics

1. Palkar, Shirish Gajanan. Some problems of educational statistics in group prediction of college success. M.S. University of Baroda.

2. Taylor, Jugalkishore. Inference in a mixed model using two preliminary tests of significance. Vikram University.

3. Vanbade, B.C. A study of some aspects of integral transforms with application to problems of physics and engineering. Jabalpur University.

Physics

1. Avadhanulu, M.N. Experimental investigations on liquid crystals. Andhra University.

2. Menon, Selvi Nalini B. On polynomial algebras and relativistic wave equations. University of Madras.

3. Simon, M.T. Studies on the relativistic field description of massless particles. University of Madras.

4. Sivarama Prasad, G.N. Studies in scattering and photoproduction of pions from nuclei. University of Madras.

5. Srivastava, Manju Bala. Calculations of atomic properties using a proposed semi-empirical model of the atom. University of Delhi.

Chemistry

1. Abdul Hakim. Studies in kinetics of oxidation of aldehydes by quinquevalent vanadium. Indore University.

2. Balakrishnan, M. Solvent and structural influences on some hydrolytic reactions. University of Madras.

3. Balakrishnan, M.S. Complexometry: Mixed ligand complexes of uranyl ion with carboxylic acids in aqueous solution. University of Madras.

4. Bamjoshi, Safla. A study of the metallic chelates of some mercapto and hydroxy acids. Vikram University.

5. Chitnis, Suresh Madhav. Physico-chemical properties and chelating tendency of some organic compounds. Vikram University.

6. Gijare, Ashok Sakharam. Kinetics of isotopic exchange between halides and halates and the effect of radiation thereon. University of Poona.

7. Jejurkar, Chandrashekhar Rangnath. Studies in heterochelates of some transition metal ions. M.S. University of Baroda.

8. Joshi, Anil Padmakar. Studies in terpenoids (Longifolene). Poona University.

9. Joshi, J.M. Studies on recoveries of potassium chemicals and fertilizers from indigenous resources. Saurashtra University.

10. Lalthantluanga, R. Haemoglobin phenotypes in ungulates. University of Poona.

11. Sahu, Niranjan Prasad. Chemical studies on some medicinal plants. Berhampur University.

12. Salganvkar, Rewati. Studies in thioglycollanilide chelates. Vikram University.

13. Sengupta, Gobinda Prasad. Studies in chelate complexes: Oxo-Vanadium (IV). University of Burdwan.

14. Sharma, Dwarkanath. Formulation of pesticides. Vikram University.

15. Shrikantbabu, Jonala Gadda. Kinetics of oxidation of some amines by potassium peroxydisulfate. Vikram University.

Earth Sciences

1. Acharya, N. Magnetometric studies and geological implications of iron ore deposits of Podagada Area in Koraput District. Andhra University.

2. Baruah, Nalin Chandra. Geological study of the precambrian rocks of the Hahim Area, Kamrup and Khasia Jayantia Hills District, Assam. University of Gauhati.

3. Muppa, Narasimha Reddy. Geology of the copper-lead deposits of Agnigundala, Guntur Dist. A.P., India. Osmania University.

BIOLOGICAL SCIENCES

Biochemistry

1. Jacob, Elizabeth. Studies on brain metabolism. M.S. University of Baroda.

2. Patel, Jawaharlal Maniklal. Effect of diet on the activities of drug metabolizing enzymes and lipid paroxidation. Marathwada University.

Botany

1. Das, Ratan Chandra. Genetical studies on seed-dormancy in rice (Oryza Ssativa L.). University of Burdwan.

2. Desa, Carmen, Studies on the physiology of excised roots of solanaceae. University of Poona.

3. Gore, Shripad Bhaskar. Agronomic studies on leaf protein production-III. Marathwada University.

4. Vivekanandan, M. Studies on the mechanism of action of amitrole on chloroplast development. Madurai University.

Zoology

1. Abraham, Subhashini. Studies on indigenous oils as synergists to synthetic insecticides. Osmania University.

2. Raghvayya, Sompallee Chinna. Studies on the morphology, histology and enzymology of the alimentary tract of some fresh water Indian teleosts. Indore University.

3. Alfred, Jeyakumar Rajiah B. Studies on the biology of chironomidae: Tendipedidae-Diptera. Madurai University.

4. Belsre, Devidas Kisanrao. Some aspects of endocrine system in teleosts. *D.Sc.* Vikram University.

5. Bhatnagar, Snehlata. Effects of various factors causing water pollution of certain fishes. Indore University.

6. De, Nemai Chand. Studies on the nematode parasites of some vertebrates of Eastern India. University of Burdwan.

7. Nayak, R.P.S. Kumar. Some histochemical and biochemical studies of the genital tracts of some rodents. Indore University.

8. Parmar, Shivnarayan. Studies on the natural and external features of a dipteran fly *Hippobosca maculate* (leach) (Diptera Schizophora pupira hippoboscidale) with special reference to the anatomy and histology of the alimentary canal and the reproductive organs. Indore University.

9. Prabakaran, E. Studies on the blood and the hepato pancreas of an arachnid Palamneus Swammerdami in relation to cuticle formation. University of Madras.

10. Rajendran, M. Studies on freshwater calanoids. Madurai University.

11. Sakthivel, M. Studies on euthecosomata of the Indian ocean. University of Cochin.

12. Seth, Onkarnath. Anatomical and neurological studies on the heart of molluscs. Vikram University.

13. Saxena, Harimohan Krishan. A contribution to the history of zoology with special reference to the traditions of zoology in India. Indore University.

14. Tejpal, Swarnalata Lajpatrai. Soil and plant parasitic nematodes of Marathwada Region. Marathwada University.

Medical Sciences

Panchal, Dhananjay Ichharam. Role of acetylcholine in adrenergic nerve transmission. M.S. University of Baroda.

Agriculture

1. Dahiya, Ram Pratap. Evaluation of sorghum germ plasm for fodder yield and quality under irrigated and dry farming conditions. Haryana Agricultural University.

2. Faroda, Amar Singh. Studies on the response of cow pea (Viana sinensis (Linn) Savi) fodder varieties to phosphatic, nitrogenous and bacterial fertilization and their residual effect on hybrid bajra. Haryana Agricultural University.

3. Gohil, Ramanlal Karsandas. Some observations on the biology and the control of the cotton spotted boll-worm (Earias Spp.) in Saurashtra. Gujarat Agricultural University

4. Mohan Prakash. Agricultural education systems analysis. Punjab Agricultural University.

5. Om Prakash. Effect of mulches and gypsum on salts and moisture distribution and on crop growth in saline-sodic soils. Haryana Agricultural University.

Veterinary Science

1. Gajanana, A. Pathogenesis, pathology and immunity in rabies. University of Madras.

2. Jain, Nemi Chand. Antigenic analysis of listeria monocytogenes. Haryana Agricultural University.

3. Jitendra Kumar. Genetic studies on the performance of desi chickens and their crosses with exotic breeds. Haryana Agricultural University.

4. Shukla, Rajnikant Kamalashanker. Quantitative genetic studies of some economic traits of sheep breeds of Gujarat. Gujarat Agricultural University.

SOCIAL SCIENCES

Sociology

1. Joshi, Biharilal Dalchand. Social legislation and its administration in the Malwa Region in 20th century: 1901-70. Vikram University.

2. Khatri, Murlidhar. Social insurance for industrial workers in Madhya Pradesh. Vikram University.

3. Mehta, Anjali Dhawal. Sex role identification in preschool children. M.S. University of Baroda.

4. Trivedi, Saroj. A study of the child rearing practices in nuclear and extended families in a small town. Indore University.

Political Science

1. Joshi, Nirmala. India and the Soviet Union: A Study of non-official attitudes and contacts, 1917-1947. Jawaharlal Nehru University.

2. Keshav Kumar. Some aspects of communal politics of India 1858-1947. Jabalpur University.

3. Raghunath Ram. Soviet attitude and policy towards Pakistan: 1947-68. Jawaharlal Nehru University.

4. Rana, Rajinder Singh. The working of federalism in Nigeria: 1960-66. Jawaharlal Nehru University.

Economics

1. Bandhuram. Agriculture cooperative credit in Madhya Pradesh during planned period. Vikram University.

2. Dholakia, Bakulrai Harshadrai. Sources of economic growth in India. M.S. University of Baroda.

Public Administration

1. Bhupinder Singh. Police administration in Assam 1874-1947. University of Gauhati...

2. Pare, Shridhar Chunnilal. The organization, administration and working of the Police Deptt. in Madhya Pradesh since 1956. Vikram University.

Education

1. Pandya, Kulin Dhimantram. Standardization of a language ability test in Gujarati for college entrants. M.S. University of Baroda.

2. Pattabhiram, Gadiraju. An evaluation of nationalised textbooks for higher classes in social studies in secondary schools of Andhra Pradesh. M.S. University of Baroda.

3. Reddy, V.L.N. A study on certain factors associated with academic achievements in the first year degree examination. M.S. University of Baroda.

4. Sudame, Gajanan Raghunath. A study of the effect of library use on academic achievement of post-graduate students in M.S University of Baroda. M.S. University of Baroda.

HUMANITIES

Philosophy

Handa, Vijay. A Study of pre-samkara Advaita Vedanta. University of Delhi.

Linguistics

Subbiah, G. A descriptive study of Kota Language. Annamalai University.

Literature

English

Bhandari, D.P. The plays of W.B. Yeats: Technique and Thought. Jabalpur University.

Sanskrit

1. Gandhi, Pushpa. A comparative study of Prakriya Kaumudi and Siddhanta Kaumudi. University of Delhi.

2. Jain, Premchander. Panditraj Jagannath krit Ras Gangadhareye Alankarshaster Mimansa. Awadhesh Pratap Singh University.

3. Mumukshu, Raghuvir. A critical study of the Kashika. University of Delhi.

4. Phone, Souroth Senekham. A study of mind according to the Sutta and Abhidhamma Pitaka. Magadh University.

5. Sharan, Mahesh Kumar. A study of Sanskrit inscriptions of ancient Cambodia (on the basis of first three volumes). *D.Litt.* Magadh University.

6. Sharma, Dasharath. Panditraj Jagannath ke alankar nirupan ka sameekshatak adhyayan. Saurashtra University.

7. Sharma, Ujjwala. A study of metres in Sanskrit drama (Bhasa-Bhavabhuti). University of Delhi.

Hindi

1. Agrawal, G.D. Dhola Maru Ra Duha: Vyakarnik adhyayan. Saurashtra University.

2. Awasthi, Krishna. Varindavan Lal Verma ke upanyason ka sanskritik adhyayan. Awadesh Pratap Singh University.

3. Bhatt, Kantilal Chimanlal. Gujarat mein Kabir parampara. South Gujarat University.

4. Mishra, Ramchander. Hindi padya parampara aur Tulsidas. *D. Litt.* Jabalpur University.

5. Patel, Naranbhai Mathurbhai. Post independence short stories in Hindi and Gujarati literature: A comparative study, 1947-65. South Gujarat University.

6. Shukla, D.S. Chhattisgarh: Lok-sahitya ka samaj shastriya adhyayan. Ravishankar University.

7. Somani, Ramkishan. Santmat ke pripekshy mein sant Ramcharan ka adhyayan. Indore University.

8. Tripathi, S.S. Swatantryottar Hindi kahani ka samaj shastriya anusheelan. Ravishankar University.

9. Vyas, Manoharnath Manishanker. Hindi evam Gujarati ke Bhramar Geet kavya ka tulanatmak adhyayan. M.S. University of Baroda.

Geography

1. Sharma, Girishdatt. Agricultural geography of Gang Canal Colony, Rajasthan. Vikram University.

2. Vijanderpal Singh. Land utilization in Rewa District. Awadhesh Pratap Singh University.

H[illegible]

L[illegible] Jagdishchander. The relations between the Holkars of I[illegible] and the Peshwas: 1740-1818. Indore University.

MARATHWADA UNIVERSITY

Applications are invited for the following posts in the University Departments so as to reach the undersigned on or before December 15, 1973.

(i) **Professors:** One in Commerce, One in Sociology, One in Hindi, One in Physics, One in Mathematics and One in Biochemistry.

(ii) **Readers:** One in Econometrics/Mathematical Economics, One in Mathematics (Temporary), One in Solid State Physics, One in History (Temporary), Two in Chemistry (Organic, Inorganic), One in Dramatics, and One in Journalism.

(iii) **Lecturers:** Two in Marathi, Three in Economics (One Temporary), One is Chemistry, Two in Mathematics (one temporary), Two in Statistics, Two in Botany (Plant Pathology, Plant Physiology), One in Sociology, One in Commerce, One in Journalism, One in German, One in History.

Pay-Scales: 1. Professors: Rs. 1100-50-1300-60-1600.
2. Readers: Rs. 700-50-1250.
3. Lecturers: Rs. 400-40-800-50-950.

MINIMUM QUALIFICATIONS AND EXPERIENCE:

(1) **Professor:** At least First Class Master's Degree in the subject. A research Degree of an Indian or Foreign University of a Doctorate standard and/or published work of acknowledged merit.
Ordinarily ten years' total teaching experience in the subject in University or College, including about five years' experience of teaching postgraduate Classes.

(2) **Reader:** At least a Second Class Master's Degree in the subject, research degree of an Indian or a Foreign University of Doctorate standard and/or published work of acknowledged merit in the subject.
Five years' teaching experience in a University of College preferably wholly at Postgraduate level.

(3) *Lecturer:* At least a Second Class Master's Degree in the subject and/or a research degree of a doctorate standard and/or research publication of acknowledged merit.
Ordinarily five years' teaching experience in degree and/or Postgraduate Classes.

In suitable cases the University authorities may, on the recommendations of the Selection Committee, relax the conditions regarding the prescribed qualifications and experience.

Detailed information regarding the prescribed qualifications in the subject with specialisation etc. will be supplied alongwith the prescribed application forms on receipt of a self addressed envelope (23 x 10 cms) bearing Postal stamps worth 70 paise to cover the postage. Applications in the prescribed forms should reach the Registrar, Marathwada University, Aurangabad, not later than 15th December, 1973, alongwith the fee of Rs. 3/- in the form of Postal Order. Those who are already in service should apply through proper channel.

(V. K. DHAMANKAR)
Registrar.

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY, BOMBAY

Applications on prescribed forms (eight copies) available from the University Office, on payment of Rupees three by M.O. or in cash, are invited for the post of *Development Officer* to work at the University Office so as to reach the undersigned at 1, Nathibai Thackersey Road, Bombay-20, on or before *December 5, 1973.*

QUALIFICATIONS :

A) A first or Second Class Master's Degree.
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(SMT.) KAMALINI H. BHANSALI
REGISTRAR

Current Documentation in Education

A list of select articles culled from periodicals received in the IUB Library during January - October 1973.

ADULT EDUCATION

"Accessible to all: A major report from Ontario". *A.C.U. Bulletin of Current Documentation* (8); Apr 73: 1—4.

Adiseshiah, Malcolm S. "Place of literary in education". *Convergence* 6(1); 1973: 9-14.

Arvind Chandra. "Adult education in home making: A research study". *Indian Journal of Adult Education* 34(1); Jan 73: 11, 16.

Bhandari, J.S., and Anand Prakash. "Role of adult educators during crisis". *Indian Journal of Adult Education* 34(2); Feb 73: 11-12.

Bhansali, Kamalini H. "University and lifelong education". *University News* 11(9); Sept 73: 6-8.

Cavan, Rosemary. "For one in nine of the adult population: The Russell report". *A.C.U. Bulletin of Current Documentation* (9); June 73: 1-4.

Dandiya, C.K. "Evolutionary process: University adult education in India—I". *Prasar* 1(1); Apr 73: 38-45.

Draper, James A. "Universities and the challenge of an illiterate population: A research question". *New Frontiers in Education* 3(1); Apr 73; 27-35

Draper, James A. "Universities and the challenge of illiteracy" *Indian Journal of Adult Education* 34(3); Mar 73: 9-12, 19.

Freire, Paulo. "By learning they can teach". *Convergence* 6(1); 1973: 78-83.

Greenwood, Noel. "Three out of four adults want to learn more". *Times Higher Education Supplement* (70); 16 Feb 73: 9.

Grinyer, Roger. "Britain gets plan to double number of students in adult courses". *Chronicle of Higher Education* 7(32); 14 May 73: 7.

Grinyer, Roger. "Post experience non-degree courses could alter O U's character". *Times Higher Education Supplement* (81); 4 May 73: 5.

Hennessy, Peter. "Involve more workers in adult classes: ILEA". *Times Higher Education Supplement* (104); 12 Oct 73: 2.

Hennessy, Peter. "Leeds conference welcomes Russell report proposals with some reservations". *Times Higher Education Supplement* (78): 13 Apr 73: 4.

Hill, Barry. "Open University would be too expensive". *Times Higher Education Supplement* (80); 27 Apr 73: 9.

"Implications of mass higher education". *Higher Education* 2(2); May 73: 135-274.

"Integrating part-time and full time courses at Canadian Universities". *A.C.U. Bulletin of Current Documentation* (9); June 73: 6-9.

Jacobson, Robert L. "Colleges are not meeting needs of adults, panel on non-traditional study finds". *Chronicle of Higher Education* 7(18); 5 Feb 73: 1, 7.

Kidd, J. R. "3rd International Conference: Tokyo". *Indian Journal of Adult Education* 34(3); Mar 73: 13-14.

Leddy, J.F. "Redefining the university's constituency". *Times Higher Education Supplement* (101); 21 Sept 73: 14.

London, Jack. "Reflections upon the relevance of Paulo Freire for American adult education". *Convergence* 6(1); 1973: 48-60.

Lovett, Tom. "To each according to his need". *Times Higher Education Supplement* (100); 14 Sept 73: 14.

Madhava Menon, K. "Learning through post". *University News* 11(10); Oct 73: 5-6.

Mathur, B.M. "University adult education in India and Singapore: A comparative study". *Indian Journal of Adult Education* 34(1); Jan 73: 5-6.

Mehta, M.S. "New strategy for adult education in India." *Indian Journal of Adult Education* 34(3); Mar 73: 3-5.

Mhaiki, P.J. "Political education and adult education". *Convergence* 6(1); 73: 15-20.

Moorman, Paul. "Campus and exams vanish in the university—without—walls". *Times Higher Education Supplement* (67); 26 Jan 73 : 8.

Nelson, Fred. "O U project: Idealism and hard realism". *Times Higher Education Supplement* (65); 12 Jan 73: 8.

Odokara, E.O. "Contribution of universities to adult and workers' education: A pilot project in Nigeria". *Prasar* (1)2: July 73: 55-9.

Ommen, L.B. Van. "Adult education in the Netherlands". *Convergence* 6(1); 1973: 28-35.

✓"Open University" (A discussion). *Round Table* 2(23); 8 July 73: 2-11.

✓Open University (1): Innovation". *A.C.U. Bulletin of Current Documentation* (10); Oct 73: 20-3.

✓Open University". *Times Higher Education Supplement* (89); 29 June 73: 12.

Rokadiya, B.C. "Adult education in urban and industrial areas: Problems and prospects". *Indian Journal of Adult Education* 34(4); Apr 73: 3-6.

"**Russell report** : A narrow but useful vision". *Times Higher Education Supplement* (76); 30 Mar 73: 12.

Shrivastava, Om and Shrivastava, Ginny. "From book principles to field practices". *Prasar* 1(2); July 73: 27-35.

Stanley, Manfred. "Literacy : The crisis of a conventional wisdom". *Convergence* 6(1); 73: 62-77.

U.K. Committee of inquiry on adult education (*Chairman*: Lionel Russell). "Adult education: A plan for development, a report". *Times Higher Education Supplement* (76); 30 Mar 73: I-VIII.

Unnithan, T.K.N. "Sociology of adult education in India". *Prasar* 1(1); Apr 73: 5-14.

V.D. Singh. "Teachng the adult". *Prasar* 1(1); Apr 73; 32-7.

✓**Venugopalan, C.R.** "Open University". *Youth Times* 2(13); 21 Sept 73: 24-5.

West, Linden. "Silverdale project". *Times Higher Education Supplement* (64); 5 Jan 73: 9.

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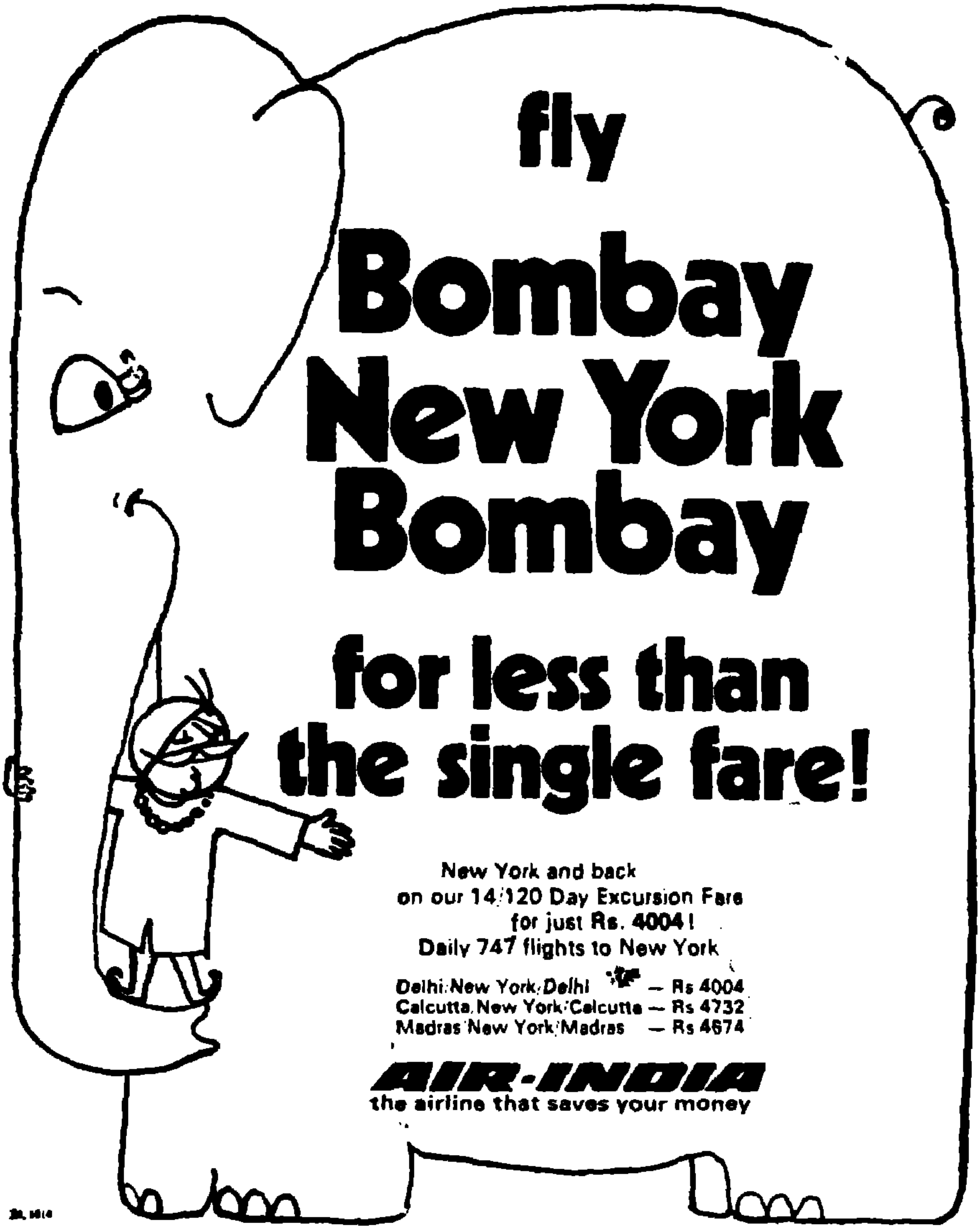

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1973
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WILL BE
INDIAN SCIENCE
CONGRESS SPECIAL**

University Convocations

Convocations are losing their sanctity as well as the glamour in our universities. The traditional academic robes worn on this occasion are being replaced by simpler costumes in different parts of the country. The Convocation Addresses are frequently interrupted. Students utilise this occasion for raising all sorts of slogans and ventilating their grievances against the establishment. The whole process has of late become somewhat lifeless without members of the university being given the opportunity of discussing the points raised in the Address with the guest speaker himself.

The initiative taken recently by the Chancellor of Maharashtra Universities is encouraging. He has persuaded the universities to follow up the Convocations, wherever possible, by a seminar on the subject of the Address at which both the members of the faculties and students could meet and discuss the various points raised by the guest speaker. This arrangement not only encourages the faculty and students to enter into a meaningful dialogue with the distinguished speaker but also provides on opportunity to him to have a close insight into the thinking of the academic community and the leaders of the youth on the various points posed by him in his Address. A lead has already been taken by the Bombay University which recently invited the Union Planning Minister, Mr. D. P. Dhar, for their Convocation. The follow up seminar was well informed and extremely interesting one. Similarly the Marathwada University invited Dr. H.N. Sethna, chief of the Atomic Centre who participated in the seminar organised the next day. This too proved to be very stimulating for the students and the faculty. The Poona University recently had Prof. Satish Chandra from the University Grants Commission for their annual day. His Address was also followed by discussions.

The experiment of Maharashtra Universities could be followed up at other places depending on the convenience and willingness of the guest speakers. The process would ultimately lead to a much closer involvement of the students with the affairs of their alma mater.

Students Review

The best way to foster a sense of objectivity among students is to place the responsibility on them alongwith guidance. In 1968-69, The Tata Institute of Social Sciences, Bombay launched an experiment of associating students with periodic reviews of various academic programmes, including the syllabi, methods of teaching etc...

MANDAKINI KHANDEKAR
&
ALKA GOLWALKAR

SHOULD STUDENTS have a say in deciding what should be taught ? The question is one of the live issues in higher education in India today. The very question is indicative of the new mood and considering the general trend of thinking, a negative answer is not likely to find favour with the "progressive" educationists. A positive answer, on the other hand, only raises a host of other questions. What role should students have in revising curricula? Who should these students be? Should they be the elected representatives of the students or the nominees of the college authorities? Under what circumstances should reviews of the courses by students be encouraged? What procedures should be followed? These questions do not exhaust the list but only indicate the types of questions for which answers must be found if any positive role is to be assigned to the students.

At the Tata Institute of Social Sciences (TISS), Bombay, the questions are no longer of academic interest. Indeed, the stage of experimentation too is well past. A formalized Course Review System exists in the TISS in which the students are expected to play a major role.

The TISS is an autonomous institute deemed to be a University under the UGC Act. It has a Governing Board of 15 members and an Academic Council of 20 members. Matters of academic interest are discussed by the Academic Council which makes its recommendations to the Governing Board which then takes decisions it considers appropriate. The role of the Director may not be discussed here. It would be sufficient to say that it is many-sided and of crucial importance in both the academic and administrative processes.

A periodic review of the various academic programmes, including the syllabi, methods of teaching, etc. is an essential accompaniment of the teaching process. At the TISS, it has been a matter of policy ever since it was established This was done by the Faculty and the Academic Council as the Institute was and continues to be autonomous. Students' role was small and rather informal till about five years back.

By 1968-69, *the time was ripe for an experiment.* Initially, evolving a course review system was taken up as an experimental project the responsibility for which was assigned to Mr. P. Ramachandran, Head of the Department of Social Research. For two successive years, the experimental project was managed by this Department. It was decided that only senior students would be involved and that each specialization course would be reviewed independently of the other courses.

The Faculty and the students alike were deeply involved in this matter of reviewing the courses. The Director, Dr M.S. Gore, was the guiding spirit behind the experiment. An important change was noted in the organization of students' meetings held immediately after the final examination. Initially, during the experimental two-year period, the senior students used to meet the groups, one each for the seven specializations, and hold their discussions.

They also elected a representative. On its part, the Institute would nominate as the other representative the student who secured the highest number of marks for the specialization concerned. These two student representatives would first prepare a report incorporating their group's views, comments and sug

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The Courses

gestions and submit it to the Director. They then attended a meeting with the Director, the Head of the Department, the academic staff and two alumni invited by the Institute. These meetings were held specialization-wise. Now, all the senior students and not merely two representatives, attend the meetings.

Although the Institute prepares students for the Ph.D. degree, they do not participate in the review system.

THE FOUR-STAGE REVIEW

What does the course review system mean in actual practice?

The review is a four-stage process spanning the whole academic year and in which the senior students participate. Besides, the seven different common basic courses and the field-work too are reviewed. The details of the four stages are as follows:

Stage I : The process is started immediately after the Director's Inaugural Address to the students. The senior students stay back after the Address to reply to a questionnaire. The questions they have to answer relate to the basic courses they learnt and the field work they did as juniors. The questions seek to bring out their views on the methods of teaching, course content and the time allotted to each basic course, the opportunities for the students to actively participate in the learning process, and their problems and other general comments. The same questions are to be answered for each of the basic courses. The questions concerning field work, case work and group work are appropriately different but are aimed at getting to know the students' views about the different aspects of field work in which the students are involved for a very large part of their training. Complete confidentiality is strictly maintained — the answers pass through as few hands as absolutely needed. The students, moreover, do not write their names anywhere on the questionnaire.

Processing and analysis of students' answers are done without any loss of time. Sorting of answers is done separately for each basic course. As most of the questions have pre-coded answers all that a teacher of any particular course gets is an account of how many students gave which answers. In addition, of course, students' comments are listed and supplied to the teachers concerned. The same procedure is followed for field work.

Stage II: The Review System povides for a mid-term evaluation. It takes place at the beginning of the second semester. By this time, the seniors are quite familiar with their specialization courses and are in a position to offer their comments on the teaching of the courses. The Institute has constituted seven different Curricula Consultative Committees (CCCs), one each for the seven specialization courses. Each CCC consists of the head of the department, the other teaching staff, all the senior students and one or two alumni for the particular specialization. The Director is the chairman and the Registrar the secretary of all the CCCs.

During the meetings of the CCCs, the Faculty and the students discuss matters of mutual interest in an atmosphere of cordiality. Members of the Faculty gain an understanding of the students' problems. The students, on the other hand, come to know why many things are done the way they are. Questions are asked and clarifications given. Suggestions for changes in the different things connected with the overall teaching-cum-learning process are made at times and are fully discussed. Some decisions too are taken. The Registrar in his capacity as the secretary records the minutes.

Stage III: As the second semester approaches its end, the senior students are once again called upon to give their views on the courses. The students assemble as though in a class and answer the questionnaire which is in two parts. The first part concerns the specialization course, the concurrent field work, the block placement, the special assignment paper and the research project. The second part includes questions regarding work-load, examinations, assignments, library facilities, supervision, administration and similar other things. Additionally, the students are at liberty to raise new questions, and to offer comments on any aspect of his learning process, or on the working of the Institute.

Once again, answers to the questions are processed and analysed as quickly as possible. The task of mechanically processing the data is assigned to an outside agency. Feedback to the Faculty, the Academic staff and the Administrative staff is done in the same way as mentioned earlier. The different persons get to know what concerns them. In addition, students' views on matters of common and general interest are sent to all the persons.

Stage IV: This stage follows close at the heels of the earlier one. A second round of discussions at the CCCs takes place in the end. In the first instance, the senior students hold seven parallel meetings and discuss everything that they wish to concerning all the aspects of their training at the Institute. Each group prepares a report and submits it to the Director. This report is discussed at a meeting of the CCC which the Director convenes shortly after the students answer the questionnaire. In addition to the heads of the departments, the academic staff, and the senior students, two alumni attend the meeting at the invitation of the Director. The Director chairs all the meetings and the Registrar functions as the secretary. Minutes of the meetings are recorded and later sent to the heads of the departments. Discussions at these meetings are usually free and sans reservation. Yet, the atmosphere is one of cordiality and understanding even though the Faculty may not always share the fervour of the students about certain problems which may be new to the students but not so new to the Faculty.

FOLLOW-UP WORK

What remains after these meetings is the follow-up work. After the excitement of the last two stages and the Convocation which follows them quickly, subsides, the Director holds separate meetings with the Faculty of Social Work and the Faculty of Personnel Management and Labour Welfare. The results of the students' reviews are discussed once again. Tentative decisions are taken if considered appropriate. If any major changes are required in the syllabus, methods of teaching, etc. the matters are referred to the Academic Council. Other changes can be made by the Director and the heads of the departments. Thus ends the year-long process of students' review of courses. Some time elapses before it is started afresh all over again with the commencement of the new academic year.

What has been the outcome of this system? How good are the students in their review of the courses?

In this brief article an exhaustive and critical appraisal of the system itself and of the students' role in it cannot be attempted. However, it can be said that on the whole the system operates smoothly and that the credit for this goes not only to the TISS but also to the students. That they would be vocal is only to be expected. But what needs to be emphasized is that they are also objective and sober. They are able to identify the problems quite easily, but lack the ability to suggest worthwhile alternatives. Perhaps this too is understandable. Perhaps they wait for their elders to suggest solutions to their problems.

In the very nature of things, it would be too much to expect the students to suggest major changes in the contents of the curricula. Nonetheless, some changes in the curricula have also been made. On the other hand, they help the teachers to improve teaching methods by helping them to know how different methods work in actual practice. Students' suggestions are also useful in planning their field work placements. Indeed, some important changes have taken place as a result of the suggestions made by the students.

The psychological gains of the system are equally noteworthy. That very valuable sense of participation is fostered among the students. They have welcomed the review system as they get an opportunity to express their views. The system has been so designed that a favourable atmosphere for a free and frank expression of opinions is created. The timings of the last two stages are such that no student can be victimized. At the same time, care is taken to see that the system does not operate as a threat to the Faculty or the academic staff because students' personal comments or views on them are not made use of while assessing their overall performance.

FAVOURABLE SITUATION

It could be said that perhaps the situation at the TISS was most favourable for conducting such an experiment — being autonomous, the Institute is quite small. The discipline of social work in India is fairly young and there is plenty of room for its development. It draws liberally on other disciplines such as sociology, psychology, psychiatry, etc. which themselves are still new in India. Field work is an important ingredient of the training and offers ample scope for students to feedback their experiences to the Faculty. In addition, the students are at the postgraduate level.

All this is no doubt condusive to worthwhile contributions to curricula by the more perceptive among the students. Even so, it seems that the best way to foster a sense of objectivity is to place the responsibility on them, along with guidance at strategic points. ●●

Education begins with life. Before we are aware the foundations of character are laid, and subsequent teaching avails but little to remove or alter them.

—Franklin

Relevance in Undergraduate Courses

Having had the privilege of being a student as well as a teacher in South Indian and American Universities, the author feels relevance is one of the most grossly neglected aspects of an undergraduate education in India.

VASANTHA RAMCHANDRA

THE PURPOSE of all formal education is to enable one to understand, analyse and then adapt better to his environment. If this concept of education is accepted, it follows that the entire curriculum should be geared to help the student come into contact with such courses that would facilitate his adjustment with the environment by virtue of his formal training in them. Since the environment is constantly changing, the introduction of newer courses alone would provide relevance to education. In this aspect the neglect of relevance in our undergraduate education is glaring. In the U.S.A. an undergraduate student can choose from (a wide range of courses are offered) the courses that are most meaningful and relevant to his needs. As individual needs change, in keeping with the sociological, political, economical and psychological environ ments, newer courses are introduced to cater to those needs—Yoga and health, appreciation of modern art, problems of urbanisation etc. Courses of this nature are offered as part of the programme of general education irrespective of the major discipline in which the student ultimately obtains his degree.

There are two major theoretical approaches to the understanding of the environment of man: a) the empirical and b) the intuitive. All the major sciences get classified under the first approach while disciplines like logic, philosophy, art, religion are put into the latter category of approach. Therefore any formal education should include these two approaches in their curricula to be thorough and exhaustive.

The rigid and early compartmentalisation of students as belonging to either the Sciences or Humanities automatically removes one from the other major approach to the understanding of man and his environment. Most students in India choose disciplines belonging to either category at the high school level (14 or 15 years) or at the college level (17-18 years). But, for a meaningful and intelligent understanding of the world of today the content of the Sciences and the Humanities as well as their diverse approaches are essential. The absence of such a system is one of the starting points of lack of relevance in Indian education. Grossly, such an impact is felt in the poor understanding of inter-personal behaviour an engineer shows in his work situation and the utter ignorance an economist reveals in his understanding of the fundamentals of body chemistry. Such a system is sound to produce half-baked individuals who have little or no appreciation, interest or capacity in handling situations even slightly removed from their limited angle of approach.

Another aspect of relevance pertains to the teaching of a particular discipline. Most undergraduate education is heavily slanted towards the historical aspects of a given subject. Here students are only given a general review of the leading thinkers in a particular field; the circumstances leading to the origin of a concept as well as an elaboration of its meaning. Such a historical approach could have been rendered meaningful by showing the relationship of these concepts to contemporary issues and problems. But this is rarely, if ever, attempted.

Further the tendency on the part of most teachers to uncritically accept authorities in any field also detracts from meaning and relevance. To add to this is the hasty and myopic desire to cover a syllabus for a course neglecting the important task of understanding the content of the course. This can at best be considered an exercise in surveying the content of a course but not understanding it.

With the course, syllabus and teaching all suffering from lack of relevance, the examination that ensues cannot but reflect this inherent defect. Most examinations demand reading, memorizing and reproduction from its students as opposed to the ideal of understanding, intelligence and extension of the ideas obtained from a particular study to other situations. Many a answer merely consists of answers to a question which has all that a student knows on a given topic. Rarely is a question answered using the relevant and eliminating the irrelevant. It is hardly analytical, a concoction of the ideas put forward by several persons loosely hung together.

The malady of irrelevance that university education suffers from should be set right through a multipronged attack on all the fronts: a) of course, b) syllabus, c) teaching, and d) examinations. A total revamping of the existing structure and the introduction of a learning process that is meaningful is essential for preparing the individual to be more capable of adopting to his environment. This alone would make education purposeful.

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Modern Youth—Whither

> *"Young people have always been questioning the system, rebelling against it in their clothes and sex behaviour. The only difference today, is the way it's blown up. This is the first generation who have been brought up by the mass media instead of parents."*
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> *— Margaret Mead*

ATMA RAM

THE MODERN youth has gone astray is a truth universally acknowledged. One daily comes across instances of their disruptive activities. The student unrest has grown to alarming proportions in recent years. At various University Convocations, candidates have torn their degrees and demanded jobs instead of 'scraps' of papers.

During the period January to November, 1972, as many as 4,136 incidents of student unrest have been reported in the country. Indeed, strikes and agitations are the order of the educational institutions.

What has made the youth indisciplined? Why have they become irresponsible? What are the fundamental causes of the student trouble? What can the older generation do to set things right? All these questions deserve immediate attention because the problem has become titanic and gigantic.

The youth revolt is primarily an ideological problem. People hold certain values as sacred in every age and swear by them. The modern youth, however, has no genuine values to inculcate, no cardinal principles to follow, no heart-felt convictions to cherish. It is partly a universal phenomenon caused due to spread of science and knowledge. The old values have been rejected and the new have not been evolved. This has created a chaos, a state of mental blankness, a lack of poise and centripetal forces in the mind of the youth. In utter confusion, he just drifts along.

Modern youth is further puzzled by the numerous embarrassing problems that stare him in the face. The problem of growing unemployment confounds him exceedingly. According to the records of employment exchanges, there were 68,95,089 unemployed persons in the country at the end of 1972. The year-wise break-up—1971: 50,99,919; 1970: [illegible]—suggests a steady rise in this number, in spite of our concerted efforts and countless campaigns to create more and more productive jobs.

Born and bred in independent India, modern youth is both precocious and perceptive and is not satisfied by assurances only. The older generation has failed to be a model for the younger one. To the modern youth present is the age of topsyturvydom, an age of perversion and do-as-you-wish. The existing system of education, too, has not removed his misgivings—it has rather strengthened these to an amazing extent. Thus the modern youth is a helpless victim of both pride and prejudice.

Ours is an age of demonstrations and agitations, where all categories of people frequently resort to strikes. The number of strikes in the public sector in India during 1969-72 (both years inclusive) was 1680, which resulted in the loss of 77,00,621 man-days. We have failed to abolish once for all things like 'guides' 'cheap notes', 'skin-tight dresses', 'vulgar films', pornographic literature, though all concede that these have a demoralising effect on the sensitive youth.

A close study of student unrest and its causes makes it abundantly clear that quite often regional, linguistic and parochial factors are at the root of

"We'll play police and students ... I'll be [illegible] back with enough stones ..."

be mischief. They obviously do not originate from the youth. We have to tone up our society, tighten up our administration at all levels to eradicate these elements and usher in an era of socialistic and secular order. Not infrequently, the young persons become violent and damage public property. These are the off-shoots of mob-mentality and adolescent psychology.

The increasing frustration among the youth is a formidable challenge to the health-politic of the nation. The disgusted and disgruntled youth, with blunted sensibilities, could never build a nation's pillars deep or lift them to the sky. An all-out effort should be made to canalize his youthful energy towards fruitful and constructive projects.

This naturally calls for a constant and collective endeavour to solve our problems now and here and present concrete convictions and healthy traditions. The modern youth must rise above the pettiness of outlook, the littleness of mind and regain self-confidence and clarity. Lives of great men of the past will inspire and enthuse him, because what one man has done, others can do. Leisure may appear to him a pleasure and treasure of great measure. However, lethargy and youth should be absolute strangers.

The elders should know something of youth psychology and handle the young with imagination and understanding, tact and sympathy. They should be what they want the youth to be. As Mahatama Gandhi once observed: "There is no school equal to a decent home and no teacher equal to honest, virtuous parents." In some Universities in the country the students are being given representation on various decision-making bodies and boards. However, we have to draw a line somewhere, taking into consideration the naive nature and immaturity of the young people. This participation should be in as much as it is conducive to the creation.

Why not face the youth straightaway and listen to their views? They are confronted with many intractable problems. The older generation should help the youth in finding solutions to these.

All the syllabi in schools and colleges, the trainings, camps and other courses should be well-framed and well co-ordinated. A great responsibility devolves on the elders. The future belongs to the youth; but the present belongs to the elders.

The conflict between youth and age is an old one. The young persons are extremely sensitive and the old, with a life-time of experience, are often embodiments of sense. A balanced and happy existence naturally requires a harmonious blending of both sense and sensibility. The youth must learn the wisdom of the aged; and the old should as well recognize and make an allowance for exuberance and enthusiasm of the youth. They should concede (with Emma Woodhouse): "All young people must have their little whims." If youth is a dream, age is a reality. The mature persons should enable the young to sustain and translate their dreams into realities. ●●

P. M. TO INAUGURATE GOLDEN JUBILEE CELEBRATIONS

THE NAGPUR University completed 50 years of its existence on 4th August, 1973 and has decided to celebrate its Golden Jubilee in a manner befitting its heritage and traditions. The University has decided to celebrate its Jubilee not merely as a rejoicing but also as an occasion to further the cause of higher education in this region in a very realistic manner by introducing new courses having a bearing on the resources of this country and particularly those of Vidarbha. As part of Golden Jubilee Celebrations a Golden Jubilee Memorial Auditorium will be constructed of which the Nagpur University should be proud. The *Prime Minister, Mrs Indira Gandhi* will *inaugurate* the Jubilee Celebration on January 2, 1974.

Literally tens of thousands of people have received their education in this University during its 50 years existence and most of them are now working in different walks of life and are contributing their mite to the progress and development of the country. This fraternity of the University alumni includes Politicians, Social Workers, Administrators, Doctors, Lawyers, Judges, Journalists, Artists, Teachers, Industrialists, Businessmen, Scientists, Engineers, Technologists, Farmers and people belonging to many other professions The Golden Jubilee of the University should naturally be an occasion of great joy and pride to all of them and also to others who are either directly or indirectly connected with the University as *students or techers or well-wishers*.

The University, has appealed for donations. Contributions are voluntary and any amount is welcome. Persons contributing Rs 25 to Rs. 100 will be enrolled as members of the Reception Committee and those contributing Rs. 101 or more will be enrolled as Donors.

The University proposes to bring out a "WHO'S WHO" of its past alumni. All past students and teachers are requested to contact Mr. M. P. Mardikar, Secretary, Golden Jubilee Committee in this connection.

Concept of Education in GDR

KAPIL DUTTA

Education has gained in importance everywhere in the world in view of the growing demands made by scientific and technological age. Democratic forces in western countries, too, have submitted proposals to reform the educational system, free it from its old rigid structures and do away with privileges for the well-to-do sections of society.

THE German Democratic Republic has successfully implemented an educational concept which guarantees equal opportunities to all citizens and provides them with a profound and modern education on the basis of an integrated educational system.

There are no dead ends in the educational system of the GDR and no separate options. Every citizen may attain the next higher stage of education up to the highest educational institutions.

There are uniform curricula, textbooks and teaching aids for all general schools and uniform programmes for colleges and technical schools as well as for vocational training. They are elaborated at a central level and officially authorized. So all children — whether they live in small villages or in large cities— are guaranteed educational facilities.

10+2+3 SYSTEM IN GDR

General ten-year schooling is compulsory in the GDR. In accordance with the general democratic foundations of the state the right to codetermination in the educational system of parents, organisations of the working people and youth is guaranteed by law. GDR citizens are active in parent-teacher associations, parents' active groups in school classes, in popular representative bodies, polytechnical committees, scientific councils and technical commissions and share responsibility in the solution of educational problems.

There are no denominational schools. Religious communities, however, organize religious instruction on their own. The constitution guarantees every citizen the right to profess a religious creed and ot live up to their religious convictions.

No tuition fees are charged at universities, colleges and vocational training institutions. The education of children in the GDR is no longer dependent on the income or the social position of the parents. The institutions of higher education are open to every citizen who has obtained his university entrance qualification. What is done, however, is that the country's social structure is duly taken into account in the admission of students

Young people are encouraged to develop such qualities as a sense of responsibility for their own person and for others, readiness to help, honesty, modesty, perseverance, discipline, respect for the working people and their accomplishments.

PRE-SCHOOL EDUCATION

The network of pre-school facilities, and of creches in particular, (for children from 1 to 3 years) is being expanded from year to year. Seventy-three per cent of all the children between 3 and 6 age—group attend one of the 11,359 kindergartens or weekly homes. Moreover, there are 1,385 seasonal kindergartens in the countryside which are open at harvest time. Kindergarten attendance is voluntary and left to the discretion of the parents.

The most important educational methods are plays and games. In the kindergarten children learn to act independently within a group. Children not attending a kindergarten are prepared for learning and living at school in special classes which they spend learning and playing a year before they start school. Attendance is voluntary.

TEN-YEAR GENERAL POLYTECHNICAL SCHOOLS

It forms the nucleus of the educational system and the basis for all forms of future training, for instance, vocational training, technical school attendance and university study. (For university and college studies 12-year schooling is necessary).

Scientific methods and close links with life are the basic principle underlying educational work at all schools. The 10-year school is subdivided into three stages:

Lower level (forms 1 to 3): The children are instructed in reading, writing and mathematics and gain first insights into processes in nature and society.

In the third form the boys and girls learn to swim.

Intermediate level (forms 4 to 6): Biology, History and Geography are introduced step by step. Instruction is given by teachers qualified in a special field.

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Foreign language instruction starts in form 5 (in Russian).

Upper level (forms 7 to 10): In the upper level subject instruction is completely developed.

Polytechnical instruction begins in form 7. It is structured in the following way: introduction into socialist production, productive work and engineering drawing. The pupils become acquainted with the work and atmosphere in industrial enterprises and firms and employ their theoretical knowledge in practice. Polytechnical instruction is no vocational training, but part of a modern socialist general education. From form 7 onwards, a second foreign language is taught as an elective (mostly English or French).

Time table for the ten-year school

	1971-72 school year									
Form	1	2	3	4	5	6	7	8	9	10
German	11	12	14	14	7	6	5	5	3	4
Russian	—	—	—	—	6	5	3	3	3	3
Mathematics	5	6	6	6	6	6	6	4	5	4
Physics	—	—	—	—	—	3	2	2	3	3
Astronomy	—	—	—	—	—	—	—	—	—	1
Chemistry	—	—	—	—	—	—	2	4	2	2
Biology	—	—	—	—	2	2	1	2	2	2
Geography	—	—	—	—	2	2	2	2	1	2
Manual trg	1	1	1	2	2	2	—	—	—	—
Gardening	—	1	1	1	1	—	—	—	—	—
Polytechnical instruction	—	—	—	—	—	—	4	4	5	5
History	—	—	—	—	1	2	2	2	2	2
Civics	—	—	—	—	—	—	1	1	1	2
Drawing	1	1	1	2	1	1	1	1	1	1
Music	1	1	2	1	1	1	1	1	1	1
Sport	2	2	2	3	3	3	2	2	2	2
Hours per week	21	24	27	29	32	33	32	33	31	33
Optional subjects										
Needlework	—	—	—	1	1	—	—	—	—	—
Second lang	—	—	—	—	—	—	3	3	3	2

During the ten-year school attendance 118.5 hours per week are available for social and language instruction; 100 for mathematics and natural sciences; 31.5 for polytechnical subjects; 23 for sport; 21 for instruction in the fine arts and music.

Schools in the GDR provide the children with a good general education due to the great attention devoted to subjects such as mathematics, the natural sciences and polytechnics.

At present almost 90 per cent of all pupils continue school attendance in the ninth and tenth forms after having completed the eighth class. The introduction of the ten-year general polytechnical school in the whole of the GDR will be largely completed by 1975.

Experience gathered in the GDR shows that it is possible, contrary to certain propaganda denying the possibility of secondary schooling for all children, to impart to youth as a whole ten to twelve years of schooling. The argument that pupils are overtaxed by demanding educational programme does not wash, either. This argument is clearly refuted by the development of the GDR's educational system and by the performance of both boys and girls: 55 per cent of the pupils leaving school after the tenth form had good or even better marks. The percentage of children not getting their move is not higher than 1.5 per cent.

VOCATIONAL TRAINING

Ten-year schooling is followed by vocational training. It lasts 2 years on an average and is based on uniform standards worked out by the State Secretariat of Vocational Training together with expert commissions.

The practical part of vocational training is carried through in socialist enterprises and theoretical training in 752 vocational-schools attached to big socialist enterprises as well as in 318 municipal vocational schools.

Almost 99 per cent of all school-leavers take up vocational training with the aim of passing the skilled workers' examination. Eighty per cent of all school leavers in 1973 completed the tenth form.

For pupils leaving school after the eighth form vocational training lasts three years There are 140 occupations for them to choose from.

In addition to further qualification in the enterprise (enterprise academy), at evening classes or the village academy every skilled worker can attend a technical school and, after completion of the technical school study at an institute of higher learning.

The pay apprentices get depends on the year of apprenticeship and the branch of the economy. It amounts to between 80 and 165 marks a month. The new Youth Bill of the GDR provides for a gradual increase in apprentices' pay and an annual holiday leave of 24 work days.

UNIVERSITY ENTRANCE

The main road to university entrance qualification is via one of the 291 extended secondary schools in the GDR. After completion of the tenth form which they attend with all the other pupils part of the young people continue schooling in the eleventh and twelfth forms.

The best pupils are admitted with due consideration being given to the social structure of the population. Over 50 per cent of all school students are children from workers' and farmers' families.

University entrance qualification can moreover be acquired in the three-year vocational training with Abitur. At the end of this course which is carried through in special training institutions the pupils have acquired both their skilled workers' certificate and their university entrance qualification. This option is becoming increasingly popular in the GDR.

University entrance level can also be reached through evening classes where Abitur examinations can be taken in evening or combined evening and day courses. In addition they may prepare for technical school studies at evening classes. Successful completion of a technical school enables them to continue their studies at a college or university.

HIGHER EDUCATION

Enrolment at a university takes place on the basis of uniform stipulations. Due consideration is given to the efficiency principle, the social structure of the population and the state plans (economic necessities and possibilities of employment are taken into account so as to guarantee a job to every individual student).

Some 90 per cent of the full-time students receive grants of between 110 to 190 marks per month in accordance with their parental incomes. Forty per cent of them, in addition, receive proficiency bonuses ranging from 40 to 50 marks per month. Moreover, there are special grants for students with outstanding results.

Due to the far-reaching educational possibilities available to every citizen, irrespective of his social origin and financial position, the number of students and applicants has been growing all the time.

At present, almost 40,000 students matriculate every year. The number of university graduates totals 26,000 or so. That is to say that 22 per cent of the 18 and 19-year-olds take up university or technical school studies at present.

The basic principle underlying education in the GDRi s the unity of teaching, research and education, which was translated into practice in three university reforms. The latest of these was carried through in 1968. The host of institutes and large faculties were re-organized and replaced by 170 departments structured according to specialised fields. The departments are headed by scientific councils composed of university teachers and students. The academic senates were likewise replaced by more democratic bodies—the advisory councils involving university teachers, students, state officials, representatives from enterprises and public organizations.

The study consists of basic and specialised courses and lasts four to five years (Medicine six years). A foreign language and the fundamentals of Marxism-Leninism are compulsory subjects.

ADULT EDUCATION

There are opportunities for continued education for all gainfully employed citizens in the GDR. The enterprise and agricultural academics are the most important form of continued training for adults. These education centres organize courses both for unskilled workers who want to become skilled workers and for skilled workers who want to specialise or acquire fresh knowledge in their own sphere of work or another field. Moreover, foremen's courses are carried through.

In addition, there are the various schools, courses and institutions of further training run by parties and public organisations, the state, branches of the economy, professional associations of physicians, teachers, engineers and technicians.

The system of adult education also includes the evening classes with courses in various fields of general knowledge or for the completion of the eighth to the 12th form.

Clubs and houses of culture, radio and television programmes, lectures of the URANIA (Society for the Dissemination of Scientific Knowledge) and other facilities are likewise available for workers to improve their qualification.

TO OUR READERS

We have been really reluctant to raise the subscription of 'University News' but the rising cost of production, services and printing paper has compelled us to slightly raise the subscription with effect from January 1, 1974.

NEW RATES

Period	Inland	Abroad	
		Surface	Air
	(Rs.)	(Rs.)	(Rs.)
1 year	12.00	60.00	100.00
2 years	22.00	110.00	180.00
3 years	33.00	160.00	260.00
5 years	52.00	260.00	440.00
Single Copy	1.25	5.50	10.00

Higher Education

Reservations for Scheduled Castes

G. PARTHASARATHY

UNDER THE existing admission rules to educational institutions 14 per cent seats are reserved for Scheduled Castes and 4 per cent for Scheduled Tribes candidates. This has created a general impression among others that Scheduled Castes are getting favoured treatment at the expense of students from other communities. There is very lack of knowledge among the general public about the extent to which the Scheduled Castes are in a position to take advantage of these opportunities

The 46th Annual Report of Andhra University

I
Admission in Previous Class 1971-72

	Total students	S.C. students	%S.C. in total	S.T. students	%S.T. in Total
1. Colleges of Arts, Commerce and Law	595	45	7.5	2	Negligible
2. College of Science and Technology	443	11	2.4	1	Negligible
3. A.U.P.G. Centre, Guntur	294	12	4.1	Nil	Nil
4. College of Engineering	314	N.A.	N.A.	N.A.	N.A.
Overall for 1, 2 & 3	1332	68	5.1	3	Negligible

II
Arts and Science Students in A.U. Colleges and P.G. Centre 1971-72 (Previous) Discipline-wise

	Total	Percentage in grand total	S.C.	Percentage in grand total
(1)	(2)	(3)	(4)	(5)
1. Telugu	86	6.5	5	7.4
2. Hindi including Diploma	47			
3. History & Archaeology	46			
4. Sociology and Social Work	53			
5. Mathematics	57	4.3	1	1.5
6. Economic including Applied Economics	102	8.0	20	29.4
7. Commerce including M.B.A.	121	9.1	10	14.7
8. Psychology	8			
9. Politics and Public Administation	78	6.0	14	20.6
10. English	73			
11. Philosophy	30			
12. Law	84			
13. Diploma in Library Science	26	2.0	3	4.4
14. Diploma in Co-operation & Rural Studies	8			
Total Arts, Commerce and Law	819		53	
15. Physics all branches	170	12.8	1	1.5
16. Chemistry all branches	88	6.7	6	8.8
17. Applied Mathematics	55			
18. Statistics	30			
19. Pharmacy	30			
20. Botany	49	3.8	1	1.5
21. Zoology	65	5.0	7	10.2
22. Geology	14			
23. Meteorology & Oceanography	12			
Total	513		13	
Grand Total	1332	100.0	68	100.0

NOTE: Percentages are not computed for the subjects against which S.C. students are not reported.

The author is the Head of the Department of Co-operation and Applied Economics at Andhra University.

show the student strength by various disciplines both for its University Colleges as well as the affiliated Colleges for the year 1971-72—analysis of the data will help to clear several misconceptions relating to the extent of benefits received by the scheduled castes. Table No. I (on the previous page) shows the total admissions in the previous class for all students and Scheduled Caste students college-wise.

As per the statistics of the Annual Report, the Scheduled Caste proportions fall much short of the quota reserved for them. They are nowhere near the figure statutorily reserved for them. Position of the Scheduled Tribe is far worse. The apprehensions that the statutory reservations are benefitting Scheduled Castes at the expense of others have no factual basis.

Since reservations are not in the overall jobs, but department-wise and since different departments have different qualifications for eligibility for jobs, concentration of Scheduled Caste students in any one discipline will put them in a disadvantageous position in deriving the benefits from reservation. For this reason we examine the distribution of Scheduled Caste discipline-wise for the items for which S.C. figures are available. (See Table No. II on previous page).

Scheduled caste enrolment is concentrated in a few disciplines like economics and politics. The differences in the percentage of enrolment between all students and S.C. students discipline-wise is striking. Scheduled Castes should be advised to enrol themselves in such of those disciplines in which they are not at all represented so that they can take the best advantage of the reservations available to them.

Professional Colleges

Figures for Engineering Colleges located in University area are not available. For other professional colleges the picture is as follows:

	Total	S.Cs.	Percentage
Teachers Training Colleges	1057	31	2.9
Medical Colleges (in all classes)	3296	224	6.8
Ayurvedic Colleges	50	Nil	Nil
College of Engineering, Kakinada	791	52	6.6

In professional colleges the representation of Scheduled Castes is better, though even here their representation falls far short of statutory reservations.

Affiliated Colleges

Facts are presented for 49 affiliated colleges and 22 colleges of oriental learning. But in quite a few cases figures relating to Scheduled Castes are not presented. It is not clear whether the data are not available or there is no enrolment of Scheduled Castes. In view of this vagueness we picked out colleges in which some S.C. figures are reported. We choose to adopt this procedure because since in one college, namely D.N.R. College, Bhimavaram which is generally known to have considerable strength of Scheduled Caste students no Scheduled Caste enrolment is reported. (See Table No. III below).

Even at the affiliated college level the present enrolment of Scheduled Castes falls below the reservation. Even here the percentage of enrolment of Scheduled Castes is much less in Science than in Arts or Commerce, and there is need for shift to Science and Commerce if Scheduled Caste students are to take fullest advantage of reservations

Oriental Learning

For the sake of completeness of the analysis we will consider the oriental colleges. Twentytwo colleges have been listed under the faculties of oriental learning The figures are:

	Bhasha Praveena	Vidyapraveena
Total students	1231	141
Total S.Cs.	12	Nil
S.C. as percentage	Negligible	Nil

The widely held notion among the general public that reservations benefitted Scheduled Castes at the expense of boys and girls from other communities needs to be corrected. Scheduled Castes are yet in no position to take advantage of the reservations provided for them in higher educational institutions. Not only that. The distribution of their enrolment is ill-balanced both at the graduate and post-graduate level, very much weighed in favour of a few disciplines, very little in Sciences. It is time that organisations interested in the welfare of Scheduled Castes paid some attention to these aspects of their education. ●●

III

	Total	Arts	Science	Commerce
Number of Colleges	49	..	..	..
Colleges Reporting enrolment of Scheduled Castes	36	..	..	..
Total strength in reporting Colleges	19188	4146	6938	8004
Total S.Cs in reporting Colleges	1133	404	294	435
% S.C. to Total	5.9%	9.7%	4.2%	5.4%

Round Up

Plea for greater decentralisation

DR. SATISH CHANDRA, Vice-Chairman, University Grants Commission, delivering the Convocation Address of the University of Poona recently said the universities of today have to set aside the old struggle between the town and the gown, and try to integrate themselves with the whole of society in order to cater to the needs and aspirations of the entire adult population, not merely the teenage or near teenage students.

He pointed out that the present examination system, the affiliating universities where colleges have no academic freedom, and the over-centralization of authority are some of the negative features of this legacy. We have some achievements to our credit, he added, but we have created some new problems. The building of an infrastructure for research, and the improvement of the salary scales of teachers are two of the achievements. Syllabi, particularly in the field of science education have also been overhauled, though, not radically enough. The great problem has been the proliferation of sub-standard, non-viable institutions, which drag down the general standard and lead to the frittering away of scarce resources.

Sociologists, social philosophers and educationists have undertaken many studies of deep crises affecting education and youth all over the world. The modern universities have to play a much larger role in the society than before. He pleaded for greater decentralization at all levels, with mutual autonomy to the two wings as a first step towards greater interaction.

Speaking on the autonomy of colleges, he said the U.G.C. has accepted the concept of autonomous colleges as a necessary measure to improve the standards of university education. The response from the universities have not been encouraging. About 20 colleges will be identified as autonomous colleges with the help of U G.C. and start functioning in the academic year 1974-75.

Dwelling on the examination reforms, Dr. Chandra pointed out that this was a matter which vitally affects the future of students. Although the shortcomings of the present examination system are known to everyone and have been discussed in detail in more than one report, little has so far been done to effect meaningful changes in the system. The U G.C. has selected twelve universities for experimenting with examination reform. Poona University is one of these twelve.

ARTIFICIAL HEART LABORATORY IN MOSCOW

AN ARTIFICIAL heart and auxiliary blood circulation laboratory has been set up in Moscow at the Moscow Institute of Clinical and Experimental Surgery.

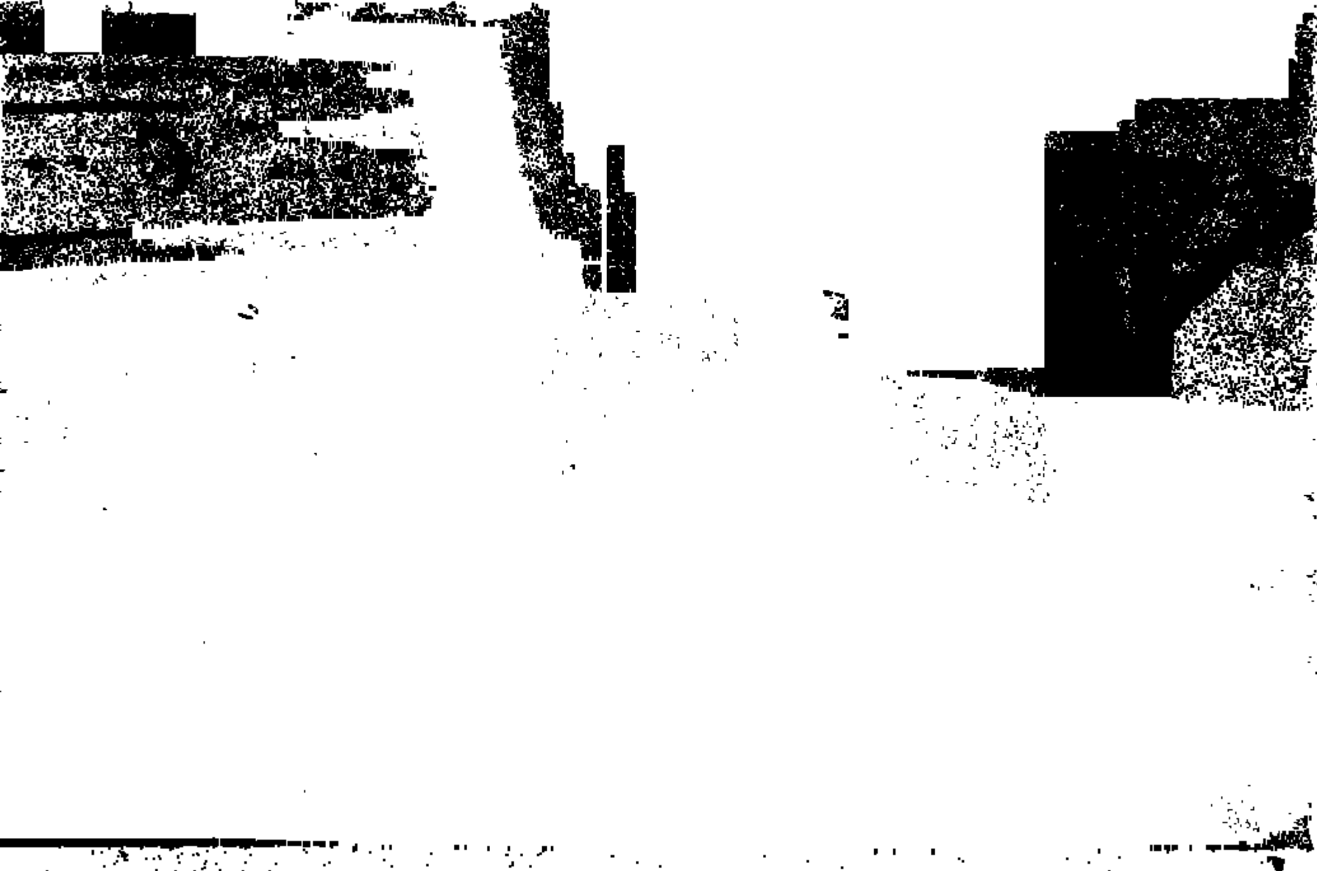
This laboratory which is headed by Professor Valery Shumakov, represents in fact a miniature research complex which has all the necessary facilities for medico-biological and engineering and physical investigations and a staff of about 30 specialists. Engineers and doctors are working here in unison. The medicos include surgeons of different specialities, anaesthesiologists, physiologists, haematologists, biophysicists, pathophysiologists, etc while the engineering staff consists of mechanics, chemists, electronic engineers, specialists in mathematically modelling, hydrodynamics and automatic control.

An artificial heart is to be built in two stages. At the first stage, Professor Shumakov said we shall work on a design of a heart with an exterior source of power supply. This means that only the pump will be placed inside the body while all the exterior gadgets—the drive and source of power supply—will be left outside and connected with the pump with the help of tubes. The second stage will be a more challenging one. During this stage

Hindi through correspondence

ABOUT 6,000 students, including 250 foreigners from abroad, are at present learning Hindi through the Correspondence Course of the Central Hindi Directorate under the Ministry of Education and Social Welfare. The students are also provided the facility of Personal Contact Programmes at important centres every year to supplement their study.

Three special courses (Prabodh, Praveen and Pragya) are also conducted through correspondence for eligible officials of Central Government, Statutory bodies, Public Undertakings and the teachers of Kendriya Vidyalayas. The next session of these special courses will commence on January 1, 1974. Admission to these courses has already begun.



1000 Curie gamma source (right) and control console (left)

they are to create a fully grafted heart with an autonomous source of power supply, perhaps an atomic one. Some steps are already being taken in this respect.

A dog with an artificial heart, made at the laboratory, can live several days.

Professor Shumakov said that the problem of developing an artificial heart is an extremely complex and many-sided one.

OPEN UNIVERSITY *DURING FIFTH PLAN*

PROPOSALS FOR the establishment of a Central University each at Pondicherry and Hyderabad and of an Open University during the Fifth Five-Year Plan are under consideration of the Government, the Minister of Education, Social Welfare and Culture, Prof. S. Nurul Hasan, informed the Lok Sabha recently.

Teachers for Education Takeover

THE ALL-INDIA Federation of University and College Teachers Organisations has demanded nationalisation of the entire education system and complete elimination of "private management in edcation."

Mr. Amiya Das Gupta, the Secretary of the Federation said in Calcutta recently that the present trend must be discarded because this has paved the way for further "class alienation among students." He blamed the Government for rejecting the idea of the Education Commission which had advocated the termination of private management and the introduction of the "neighbourhood school" system under which every child in an area could read in the same school.

He was critical of the Government opting for the setting up of modern schools and colleges. The Federation has held that educational systems should be nationalised with the proviso that the autonomy of properly constituted academic bodies and academic *matters* should be upheld.

The Federation has demanded amending of the Constitution to facilitate nationalisation of education, specially in respect of the provisions relating to the minority communities. It also wanted that reported reduction of allocation for education in the Fifth Five-Year Plan from Rs. 3.200 crores to Rs. 2.200, crores should be restored.

The Federation plans to start demonstrations in all State capitals from the first week of December, if its demands are not fulfilled.

Botany Dept of Kerala University

THE DEPARTMENT of Botany, Kerala University, Trivandrum was established in 1939 with Professor A. Abraham, then Professor of Botany in the University College, Trivandrum, as part-time Professor. He was appointed full-time Professor of Genetics and Plant Breeding and Head of the Department in March 1962 when it moved into a semi-permanent building in the old University Campus.

It was shifted to new location at Kariavattom in May 1968 where added facilities by way of an experiment station and botanic garden and a large green house have been provided. Recently a 1000 curie gamma shine unit has also been installed in the campus to facilitate work on induced mutations in plants.

Now it is one of the major departments of the Kerala University. A large collection of plants of botanic importance, especially ferns (150 species) and orchids (165 species) in the green houses is maintained. Germplasm of many plants of economic importance like paddy, cassava, pulses, plantain, vegetables, oil seeds etc. collected under the aegis of various schemes sponsored by outside agencies is also being maintained in the department.

The Department specialises in cytology, plant genetics and plant breeding and has already established reputation for work in these fields. Since 1958 over 100 original papers have been published. One of these entitled "Studies on the cytology and phylogeny of the pteridophytes VII. Observations on one hundred species of S. Indian ferns" (J.I.B.S. Vol. XLI: 339-421) by A. Abraham, C.A. Ninan and P.M. Mathew, won the Sri Chitra Prize for 1961-62 of the value of Rs. 3,000 offered to the best scientific publication in India by the Kerala University. So far five students have taken their Ph. D. degree and four Ph.D. theses have been submitted this year.

The main emphasis on the research side is on cytology of pteridophytes, gymnosperms and many groups of angiosperms like orchids, grasses, cucurbits, tuber crops, coconuts, compositae, spices, etc. Work on pollen physiology spontaneous and induced mutations, action of growth regulators on weed control etc. are also in progress.

The Department has conducted Summer Institutes for college teachers sponsored by the UGC including All India Institutes in Genetics from 1964 onwards and also Summer Schools sponsored by the NCERT.

The latest facility added to this Department is a gamma shine unit (1000 Curie Cobalt-60.) This unit has been designed primarily for botanical and agricultural research. The size of the radiation source that is accommodated is 27 mm in diameter and 80 mm in length. In the normal source stored position, the source is centrally located in a lead shield for maximum radiation safety. A circular dismanteable table is mounted on top of the oute rcover of the lead shield. This table 1.8 m in diameter is used for keeping specimens which require intense radiation dose rates. The entire gamma shine unit is located in an irradiation chamber of size 30' x 15'. The walls and roof of the radiation chambers are 3½' thick and of solid concrete. A tower located in the room holds the 1000 curie source of radioactive Cobalt-60 which emits gamma rays.. Entire room may be used for irradiation depending on the material to be irradiated and the dose rate desired. This unit has been designed and fabricated by the Isotope Division, BARC and gifted *to this Department.*

This Department is currently engaged in work of induced mutations on a variety of crop plants like paddy, tapioca and other tuber crops, pulses, vegetables like bindhi, brinjal and chillies, oil seeds like sunflower and sesamum and a few ornamental plants. In paddy alone it has been possible to isolate a very large number of mutants in respect of yield, tillering, grain characters, earliness, etc. from among one lakh second generation plants raised from gamma irradiated seeds. Some of these mutants like a high yielding red grained type isolated from the most popular rice variety Jaya appear very promising.

U. N. VARSITY FOR TOKYO

THE U. N. Financial Committee has approved the draft charter of the proposed U. N. University and also the location of the university centre in Tokyo.

The General Assembly is expected to endorse the committee's recommendation.

The proposal for a U. N. University was mooted by U. Thant when he was Secretary-General. The proposal was processed subsequently by a commitee of top educationists from the world.

Functioning as the founding committee, the same body evolved a draft charter for the university. India was associated with the proposal from the earliest stage and Mr. G. Parthasarathy, Vice-Chancellor of the Jawaharlal Nehru University, New Delhi, was member of both the committees.

The combined Universities Hockey Team which participated in the Nehru Tournament (1973-74) at Shivaji Stadium, New Delhi with the officials of the I. U. B.

***Left to Right** (sitting on ground)*: Ashok Dewan (Delhi), Ajaib Singh (Kurukshetra), K. B. Appaiah (Mysore), Karamjit Singh Brar (Punjabi), Jaswinder Pal Singh (Punjabi).

***Sitting** (Chairs)* Shri S. N. Gupta (Sports Officer, IUB), Shri B. S. Khosla (Manager), Jasjit Singh Randhawa (PAU) Captain, Shri Anjni Kumar (Secretary, IUB), Iqbal Ali Baig (AMU), Shri G. S. Sivia (Asstt. Secy (S), IUB), Anthony Cruze (Poona).

Standing : Sukhvinder Singh (Delhi,) Gokul Raj (UAS, Bangalore), Kuldip Singh (Guru Nanak), Harish Kumar (Guru Nanak), Arshad Khan (AMU), Karnail Singh (Guru Nanak), M. K. Kaushik (Delhi).

GREATER AUTONOMY FOR I. C. A. R.

MR. FAKHRUDDIN ALI AHMED, Union Minister for Agriculture, while addressing the Governing Body of the Indian Council of Agricultural Research announced that Government of India has decided to reorganise ICAR on the basis of the changes recently made in the Council of Scientific and Industrial Research (CSIR), with such modifications from the CSIR pattern as may be deemed necessary. This would confer upon the ICAR greater autonomy and flexibility in operational and management procedures.

The Government of India have decided to establish a separate Department of Agricultural Research & Education (DARE) with immediate effect in the Ministry of Agriculture. This new Department would provide the ICAR with necessary linkages with the Central and State Government agencies and in international collaboration in agricultural research and education.

Mr. Ali also announced the Government decision to set-up a Special Agricultural Scientists Recruitment Board by the ICAR, with an eminent agricultural scientist as its whole-time Chairman. The Chairman, will be nominated by the Cabinet. The Board will function as an independent ICAR recruitment agency for filling up posts in the salary scale of Rs. 700-1250 and above which are currently lying vacant.

The constituent research Institutes of the ICAR would be authorised to make recruitment for posts upto Rs. 400—950, according to the current procedures as may be modified in the light of the recommendations of the ICAR Enquiry Committee. The selections made by the Institute will be subject to the approval by the Chairman of the Special Agricultural Scientists Recruitment Board.

The Government has authorised the ICAR to fill up the senior posts lying vacant at the headquarters through transfers or deputations by the Departmental Selection Committee to be constituted in consultation with the Department of Personnel.

The Government has also decided that the pay scales of agricultural scientists should be at par with the scientists in other Government and autonomous institutions. The pay scales of the agricultural scientists should be revised on the basis of Government decision on the recommendations of the Pay Commision and which is adopted by its other scientific agencies. It has not accepted scales of pay recommended by the ICAR Enquiry Committee for the agricultural scientists.

In order to enable the Institutes to carry out the researches and educational programmes with the desired speed and efficiency, the Government has decided that greater administrative and financial powers along the lines which the CSIR has formulated should be given to the ICAR Institutes. This would mean that once a programme had been approved and necessary funds allocated by the Governing Body, the Institute would have the necessary authority to execute the programmes with as little reference to the ICAR headquarters as possible.

PERSONAL

1. Mr A. K. Mustafi has been appointed Vice-Chancellor of Lucknow University.
2. Dr Devendra Sharma has been appointed Vice-Chancellor of Gorakhpur University.
3. Dr Ranchobhai M. Patel has been appointed Director of Anand Campus of the Gujarat Agricultural University from November 15, 1973.
4. Dr. A. S. Atwal, Dean of the College of Agriculture, Punjab Agricultural University has been appointed Officer on Special Duty by the Government of Jammu and Kashmir for setting up Sadiq Memorial Agricultural University in the State.

GRADING SYSTEM IN SAURASHTRA VARSITY

THE FACULTY of Rural Studies runs three courses viz; Education, Agriculture, and Social re-construction, more or less on the inter-disciplinary pattern. This faculty has evolved its own pattern of evaluation—every teacher evaluates his students' performance. The total evaluation is based on various written examinations, self-study, survey reports, participation in co-curricular activities, practical work, social work, field work etc. The students' performance is assessed comprehensively and it is based on 11 grades as below :

No.	Range of marks.	Average.	Grade.	Indication.
1.	0-5	0	D	Fail
2.	6-15	1	D+1	„
3.	16-25	2	D+2	„
4.	26-35	3	D+3	„
5,	36-45	4	C	Pass. III Class,
6.	46-55	5	B	Pass. II Class.
7.	56-55	6	A	Pass. I Class.
8.	66-75	7	A+1	Pass. Distinction
9.	76-85	8	A+2	„ „
10.	86-95	9	A+3	„ „
11.	96-100	10	A+4	„ „

The minimum for passing in any subject is 'C' grade.

RESEARCH PROJECTS IN REPRODUCTIVE BIOLOGY

PROF. P.N. WAHI, Director-General of the Indian Council of Medical Research announced that more than 60 research projects in fundamental and applied aspects of reproductive biology in various university faculties would be opened soon. He was inaugurating a five-day International Symposim on "Advances in Chemistry, Biology and Immunology of Gonadotropins" at the Indian Institute of Science at Bangalore.

He said that the ICMR had intensified its activities in the area of human reproduction during the last few years. A full-fledged institute for research in reproduction had been established at Bombay providing multi-disciplinary approach facilities for research. The Council's efforts covered studies in sterility, fertility control and the health aspects of population dynamics.

In its expanded programme, the Council would continue to stimulate laboratory, clinical and epidemiological research on various parameters of reproduction for new developments.

DIRECTORATE FOR NUCLEAR STUDIES

THE PUNJABI University Syndicate has decided to set up a Directorate for Advance study of nuclear sciences and has appointed Dr. B. S. Sood, Head of the Department of Physics as its Honorary Director. A sum of Rs. 25,000 has been provided by the University in its current budget for starting the studies.

The Syndicate has also approved appointment of a Professor of Tamil for the Department of Tamil Language at the University campus.

OCCUPATIONAL HEALTH COURSES

THE UNIVERSITY of Madras has initiated a number of postgraduate courses both in medical and engineering faculties covering to some extent the various aspects of occupational health and safety.

This was disclosed by Dr. N.D. Sundaravadivelu, Vice-Chancellor of the university, while inaugurating Dr. Sadagopan's Endowment lectures held recently under the auspices of the Madras branch of the Indian Association of Occupational Health.

DEPARTMENT OF LIFE SCIENCES

THE BOMBAY University Senate has recommended to the Syndicate to review its decision to establish an integrated Department of Life Sciences in place of the present separate departments of Botany and Zoology. The proposal for the setting up of the composite Life Sciences Department was suggested by the University Grants Commission and has been approved by the University's Academic Council and the Syndicate.

The Senate approved the proposal for instituting the degree of Master of Labour Welfare and Industrial Relations and a degree of Bachelor of Fine Arts (Dramatics) and Diploma in Clinical Pharmacology.

MANAGEMENT INSTITUTE FOR TAMIL NADU

A WORKING GROUP on commerce and management education in a report to Tamil Nadu Planning Commission's task force on education, science and technology has suggested a blue print for an Institute of Management in Tamil Nadu. The group has suggested that a regional institute for the State was necessary for effective contribution to the process of influencing economic development of the region. With its location in Tamil Nadu, it would be viable in the context of steady increase in the number of applicants for these management courses. It has been noticed that during the last three years 40 per cent of the candidates entering these courses were from the Southern states and nearly 35 per cent from Tamil Nadu.

While students are trained from all over the country, some areas like Tamil Nadu, Delhi and Maharashtra contribute significantly larger number of candidates and majority of students are placed in industrial firms in Bombay, Delhi and Madras.

The report points out that with the growth in industrialisation of Tamil Nadu and the Southern states it is likely to lead to greater demand for professionally trained graduates in the region. There is a great potential for management graduates for employment.

A recent study has indicated that there is need for nearly 3,000 new entrants into management each year, a fraction of this is being met by the existing institutions, offering the basic programme in management.

TOURISM INSTITUTE FOR BANGALORE

MR. AZEEZ SAIT, Mysore Minister for Transport and Tourism recently disclosed that the Government of India had decided to locate the proposed International Institute of Tourism in Bangalore. The Rs. 5-crore broject is being undertaken by the Government of India in collaboration with some Asian Governments. The project is the first of its kind in Asia.

The United Nations expert who was asked to select a place has already submitted its report to the Government of India recommending Kashmir and Bangalore. Tho Union Tourism Minister, Mr. Karan Singh, had preferred Bangalore in view of its uniform climate round the year. The State Government has offered six hectares of land free of cost for the location of the Institute—either near Mysore Palace or near the Bangalore University's new complex. It would be financed and managed by a U. N. body and the centre has already set apart Rs. 5 crores for this purpose.

The Minister further pointed out that the Government had proposals to put up holiday resorts with the help of mine owners' labour welfare fund and some local bodies at Hospet and Mysore.

GUJRAL INAUGURATES OJSA

THE UNION Minister of State for Information and Broadcasting, Mr. I.K. Gujral, recently inaugurated the Osmania Journalism Students' Association. He pleaded for the development of an effective multi-media communication to meet the anticipated radical changes in society.

He stressed the need for definite place for communication in a developing society. Participating in democracy did not mean mere casting of votes, but the people should be conscious of the Government's policies and programmes. This was possible only when communication was effective. Mr. Gujral said that television, the audio-visual medium, which will cover a larger area in the next few years, will jump the "literacy gap" and reach the masses better.

Prof. V.A. Shahane, Principal, University College of Arts and Commerce, stressed the role of communication in nation building activities. Mr. S. Bashiruddin, Head of the Department of Journalism, described Mr. Gujaral as the architect of AIR's Yuva Vani which is an instrument of social change. He pleaded for the institution of Master's course in Journalism in the University.

NEW CHRISTIAN SCHOOL BODY

AT THE end of a four-day seminar, representatives of All India Association of Catholic Schools and the Association of Christian Schools affiliated to the Protestant Church held at Agra, decided to merge and form a new association called the Council of Christian Schools in India. The Christian schools, in the view of the seminar, were in the past looked upon as an evangelistic agency but now they were being recognised as purely educational bodies.

Christian schools were struggling under the present education system for total development of the child. The youth was adrift under changing conditions and was moving away from their ancient moorings. Priority should be given to vocational training. A resolution adopted at the seminar said: "We make it known to the Government at all levels our willingness to cooperate and to help wherever required. We wish to offer wholeheartedly our resources to the nation in its struggle to reform the pattern of education."

A WARDS FOR AUTHORS

THE MINISTRY of Education and Social Welfare has announced a scheme for award of prizes to authors of books or manuscripts in Indian languages mentioned in the VIII Schedule of the Indian Constitution.

Under the scheme, 65 prizes of Rs. 1,000 each will be offered every year to authors of selected books or manuscripts in the categories of Fiction, Drama, Memoirs, Travelogues and Essays and Poetry in the aforesaid Indian languages.

The scheme will not apply to Hindi, Sanskrit and the mother tongue of the author though it will cover books or manuscripts written in tribal languages of Angami and AO of Nagaland.

EDUCATION SYSTEM NEEDS REVOLUTION

INAUGURATING THE students union of the Thiagarajar College of Engineering, Mr. V. R. Nedunchezhian, Minister for Education, suggested that the universities who give academic freedom to the colleges should only have administrative control so that the students could have better oppotunities to develop their intellect.

Pointing out that our system of education needed a revolution, the Minister remarked that our students were learning for the sake of passing the examinations while, in other countries, it was learnt for thinking. He pleaded that there should be more education, better education and new education.

ABNORMALITIES OF CHROMOSOMES

The Genetic Department of Andhra University, the first of its kind in southeast Asia, will undertake a study of [illegible] responsible for [illegible]. All ailments of genetic origin, such as grave deformities of the child due to the use of drugs by pregnant mothers and incompatibility of blood types between husband and wife, which had a bearing on the health of the child called for a substantial knowledge of genetic constitutions of individuals and the population and the impact of mutant genes and chromosome aberations on them.

The Department would serve a real social purpose by rendering genetic counselling to those about to be married. The newly created Department has received 250 applications for its eight seats this year.

STUDENTS ON FLOOD FRONT

STUDENTS STUDYING in various colleges and instititions of Gujarat University particularly the volunteers of N.C.C. and N.S.S. were in the fore-front in the fight against floods which had caused great havoc in Ahmedabad and other parts of Gujarat. They helped both Governmental as well as other voluntary social organisations in their programme of rehabilitation of the flood-affected people. Both teaching and non-teaching staff came forward with voluntary contributions to the flood relief fund organised by the staff workers. The University also made a token contribution of Rs. 2,000 towards this fund.

SHRIKANT VARMA BACK FROM EUROPEAN TOUR

The well-known poet Shrikant Varma has much to say in praise of a number of literary and cultural institutions that he recently visited in England, France, West Germany, Belgium, Holland and Sweden. He has special mention to make of two—for their abiding interest in the Indian cultural scene—the Department of Oriental Studies in the University of Hamburg specialises in the study of Sanskrit and ancient Indian culture, the South Asia Institute at the University of Heidelberg is furthering European interest in contemporary Indian writing.

BORLAUG CALLS FOR WORLD FOOD RESERVE

DR. NORMAN BORLAUG, Noble Laureate and world renowned wheat specialist, who visited the Tamil Nadu Agricultural University, Coimbatore, said that he was impressed by the quality of research being carried out by Indian agricultural scientists in paddy and sorghum (jowar). He was confident that in a few years, India would achieve the same results in paddy, which it had achieved in wheat by the use of high yielding varieties. He was also confident that in sorghum also a similar breakthrough was in offing though not on the same scale as in paddy. He urged they should not minimise the importance of sorghum, since it would always stand by them as a cushion in periods of bad weather. He advised the Indian scientists "to keep advancing in their pursuit, because nature is always up against us. They should evolve newer and newer varieties, replacing the older varieties".

Asked to give his views on the use of D.D.T. and other pesticides, he said that wherever there was scope for them, they should not hesitate to use them. The people who cry hoarse against use of such pesticides are those who had never known what hunger is and who had never been to any farms, Dr Borlaug remarked.

Later, addressing the students and the research staff of the University, Dr. Borlaug called for creation of an international organisation to build up grain reserves (buffer) on a global scale to meet the food needs of the world.

He wished that organisations such as FAO should have as one of its main functions the building up of foodgrain reserves in different geographical regions to avert a disaster. The world had just managed to escape through a 'near-disaster' in foodgrains and the time has come for all nations to think in terms of larger world interests than narrow national interests, with regard to production and building up of reserves.

He pointed out that the per capita production in developed nations was rising by two per cent while in developing countries it was around 0.5 per cent to one per cent. It did not mean that the agricultural production did not go up but the population was growing up faster. The drought in the USSR and bad monsoon in South Asia, coastal disturbances in Peru and Latin American countries had all contributed to the last year's crisis in food supply and the large-scale purchases by the USSR.

COMMUNICATION COURSES

A TWO-YEAR full time degree course and a two-year part-time diploma course in communication for graduates will be introduced in Andhra University from the next academic year. The courses, first of their kind in India, are job-oriented and will meet the ever increasing requirements of radio and other means of communication. A special committee with Mr. S.N. Murthy, Deputy Director AIR as Chairman has been appointed.

The proposed courses will cover the subjects of Radio Voice—voice production, Radio Writing (language for communication, spoken word, writing for radio) and radio production techniques etc.

KRISHNAMURTHY ELECTED PRESIDENT OF I.A.E.J.

DR. NADIG KRISHNAMURTHY, Professor and Head of the Department of Post-graduate Studies and Research in Journalism, has been elected President of the Indian Association for Education in Journalism.

Messrs M.V. Desai, Director, Indian Institute of Mass Communication, New Delhi and Chanchal Sarkar, Director, Press Institute of India, were elected Vice-Presidents. Prof. A. K. Banerji, Head of the Department of Journalism, Banaras Hindu University, was elected Secretary.

CLASSIFIED ADVTS

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY, BOMBAY-400020

APPLICATIONS (eight copies) are invited on prescribed forms available from the University office, on payment of Rs. 3/- (by Money Order in or cash) for the following posts to be filled in at the Department of Continuing Education of the University so as to reach the undersigned not later than January 5, 1974.

1. Head of the Department
2. Assistant
3. Documentalist

QUALIFICATIONS :

(1) Head of the Department

(*i*) A first or second class Master's Degree of an Indian University or an equivalent qualification of a foreign university in Social Sciences/Social Work/Adult Education.

(*ii*) A Research Degree of the doctorate standard in any of the above subjects.

(*iii*) About ten years experience in programme planning, administration and teaching.

(*iv*) A person with experience in research and work experience in community development projects with emphasis on adult education will be preferred.

Condition (*ii*) may be relaxed in exceptional cases.

(2) Assistant

(*i*) A post-graduate degree at least in the Second Class in one of the Social Sciences/Social Work/Adult Education.

(*ii*) Experience of research and teaching of 5 years.

(3) Documentalist

(*i*) A post-graduate degree at least in the Second Class under Arts, Science, or Commerce and a Bachelor's degree or Diploma course of one year in Library Science, at least in the Second Class.

OR

A Bachelor's degree at least in the Second Class in Arts, Science or Commerce and a Post-graduate degree at least in the Second Class in Library Science.

(*ii*) Professional experience of 5 years.

SALARY SCALES :

1. Head of the Department : Rs. 1100-50-1300-EB-60-1600 plus admissible allowances. (Total initial emoluments Rs. 1312).
2. Assistant & Documentalist : Rs. 400-40-720-EB-40-800-50-950 plus admissible allowances. (Total initial emoluments Rs. 670/-).

NOTE :

(a) Work specifications of the above posts, will be available with the application forms.

(b) Only selected candidates will be called for interview.

Smt. Kamalini H. Bhansali
REGISTRAR

THESES OF THE MONTH

PHYSICAL SCIENCES

Mathematics

1. Chattopadhyay, Sibesh. Propagation of Seismic Waves and the Earth's Interior. University of Delhi.
2. Nageswara Rao, Gajiraja. Contributions to Construction and Analysis of Nonorthogonal Designs. Punjab Agricultural University.
3. P. G. Ram. Some Aspect of Hydromagnetic Flows. Banaras Hindu University.

Physics

1. Bhide, Madhukar Shridhar. Dielectric Behaviour of Liquids at Microwave Frequency Region. University of Poona.
2. Chakraborty, Dipak Kumar. Study of D-Region of the Ionosphere during Quiet-times and during Solar Eclipses. University of Delhi.
3. Mishra, Ram Mohan. Magneto-Microwave Effects in P-type Germanium and N-type Indium Antimonide. University of Delhi.
4. [illegible], K.S. NQR Investigations in Certain Bromine Compounds. Andhra University.
5. [illegible], Kalyan Prasad. Studies of the Secondary Components of Cosmic Rays. Gujarat University.
6. Srivastava, S.C. Spectroscopic Studies of some Di-substituted Benzaldehydes. Banaras Hindu University.

Chemistry

1. [illegible], Sudha Vithal. Isolation and Characterisation of a New Metabolite from a Drug Resistant Strain of Bacillus Subtilis. University of Poona.
2. Chakraborti, Syamal. Studies on Hydroxyethyl Starch. Gujarat University.
3. Dhoneshwar, Narayandatta Nagesh. The Crystal and Molecular Structures of O-Dimethyl Amino Benzoic Acid and Related Compounds by X-ray Diffraction. University of Poona.
4. Dixit, Digamber Govind. Studies in Metal Complexes. Marathwada University.
5. Gadre, Balkrishna [illegible]. Some Physico-chemical Applications of Gas Chromatography. University of Poona.
6. Patel, [illegible] [illegible]. Corrosion Inhibitors for Aluminium-3S. Gujarat University.

Earth Sciences

1. [illegible], Vidyadhar Dattatray. Stratigraphy and Palaeontology of the Area around Wadhwan, Saurashtra. University of Poona.
2. S. R. Sheth. Geochemistry of Middle Traps around Manpur, Distt. Indore, M.P. Banaras Hindu University.

Engineering

Babu Rao, T. A Mathematical Model for Basin Runoff. University of Madras.

BIOLOGICAL SCIENCES

Biochemistry

1. David, Sobi Grace Felicia. The Distribution Metabolism and Functions of Lipids and Lipoproteins in Normal and Neoplastic Tissues. University of Madras.
2. [illegible], [illegible]. Metabolism of Isoprenoid Compounds in Bacteria. I.A.R.I., Delhi.
3. Yadav, Satya Pal. Control of Gene Expression during Seed Germination in Wheat. I.A.R.I., Delhi.

Botany

1. [illegible], [illegible]. Studies on Important and Unknown Allergenic Pollens of Delhi State. University of Delhi.
2. [illegible], [illegible] Farooqui. Studies on Physiology of [illegible] Species with Special Reference to Cellulolytic Enzymes. Marathwada University.
3. [illegible], [illegible]. Cytotaxonomic and Morphological Studies in Phaseolus Spp. Ranchi University.
4. Tiwari, S.D.N. The Legumes of Madhya Pradesh, India. Ravishankar University.
5. Uma, M.C. Effect of Chlorflurenol and Ethephon on Growth Morphogenesis and Yield of Linseed and Wheat. University of Delhi.

Zoology

1. Bhatia, Verendra Kumar. Studies on the Chemosterilization of Yellow Fever Mosquito, Aedes Aegypti (L) by Phosphorous Amides. University of Delhi.
2. Dixit, S.C. Investigations on the Functional Capacity of Respiratory Organs of certain Fresh-water Teleostean Fishes. Banaras Hindu University.
3. Kaushal, B.R. Studies on the Family Echinostomatidae (Trematoda). Ravishankar University.
4. Mahadevan, S. Studies on the Cuticle of some Nematodes. University of Madras.
5. Santhanakrishnan, G. Studies on Schistosomes of Madras State. University of Madras.
6. Venkateswaran, R. Studies on Moulting in Isopods with reference to Protein Components. University of Madras.

Medical Sciences

1. Anjaria, J.V. Some Pharmacological Studies on the Isolated Principles of Leptadenia Reticulata. Gujarat Agricultural University.
3. Gupta, Saroj. Observations on Fluids and Electrolytes in Surgical Patients during Different Seasons. Banaras Hindu University
3. Rao, D.B. Nutrition in the Aged. Andhra University.

Agriculture

1. Acharya, [illegible] Swaroop. Impact of Technological Changes on Farm Employment and Income Distribution in Agriculture. I.A.R.I., Delhi.
2. Ajit Singh. Studies on the Bearing Behaviour of Mango (Mangifera Indica L.). Punjab Agricultural University.
3. Bapat, Dattatreya Raghunath. Combining Ability in Relation to Local Adaptation in some Sorghums (Sorghum Bicolor (L.) Moench) of Deccan. I.A.R.I., Delhi.
4. Bhajan Singh. Phosphorus Evaluation in Sodic Soils. Punjab Agricultural University.
5. Bhullar, Jagjit Singh. Development of Berries in Seeded and Seedless Grapes. Punjab Agricultural University.
6. [illegible], [illegible]. Factors Effecting Consumption of Major Foodgrains by Cultivator Households in Punjab (1951-70). I.A.R.I., Delhi.
7. Chandramohan, D. Growth Substances and Fusarium Wilt of Cotton. Annamalai University.
8. Daftardar, Shreepad Yeshwant. Urea and Ammonium Nitrate as Fertilizers for Lowland Rice Studies with 15N Tagged Materials on Nitrogen Transformations, Losses and Utilization. I.A.R.I., Delhi.
9. Deshmukh, Prakash Pundalik. Effect of Rootstocks and Differential Nutrient levels on the Growth and Chemical Composition of Sweet Orange. I.A.R.I., Delhi.
10. Dhandar, Dayanand Govinda. Root Studies in Grapefruit (Citrus Paradisi Macf) with the aid of Radioisotopes. I.A.R.I., Delhi.
11. Dua, Inderjit Singh. An Analysis of the Hormonal Basis of Grain Growth in Aestivum Wheat. I.A.R.I., Delhi.
12. Hari Kishan Singh. Evolving and Testing Techniques in Nematology with Particular Reference to Sampling, Extraction, Storage of samples, Seasonal Population Fluctuation and Nematicidal Screening. I.A.R.I., Delhi.
13. Harpal Singh. Taxonomical Studies in Citrus. I.A.R.I., Delhi.
14. Hiremath, Kadayya [illegible]. Temporal and Spatial Allocation of Irrigation Water in the Krishna Rajasagar Project (Mysore State). I.A.R.I., Delhi.
15. Kalyan Singh. Plant Density, Rhizobial Inoculation and Fertilization Studies in Pigeon Pea (Cajanus Cajan Mill. Sp.) under Rainfed conditions. I.A.R.I., Delhi.

16. [illegible], [illegible] Chand. Genetic Analysis in Clonal Populations of Intervarietal Crosses of Pennisetum Purpureum Schum. x Pennisetum Typhoides Stapf and Hubb. Punjab Agricultural University.
17. [illegible], [illegible] [illegible]. Studies on Rhizosphere of Wheat (Triticum Aestivum). I.A.R.I., Delhi.
18. Khind, Charan Singh. Efficiency of Fertilizer Nitrogen Utilization at various Physiological Stages of Growth of Rice. I.A.R.I., Delhi.
19. [illegible], Arumainayagam John. A Study of Relative Effectiveness of three Modes of Presentation : Preferences, listening and Post-listening Behaviour of farm Broadcast Listeners. I.A.R.I., Delhi.
20. [illegible] Lal. Phosphate Transformation and its availability to Rice Plant under water-logged condition. I.A.R.I., Delhi.
21. Mishra, [illegible] Prasad. Study in Cooperative Finance in Agriculture in Sadar Block of District Pratapgarh, U.P., Banaras Hindu University.
22. Nayak, Rajib Lochan. Effect of Soil Moisture Stress at Different Physiological Growth Stages on Yield and Water requirements of triple-gene Dwarf Wheat (Var : Hira). I.A.R.I., Delhi.
23. Panda, Immanuel China. Studies on the Inheritance of Resistance to Malathan in Tribolium Castaneum (Herbst). I.A.R.I., Delhi.
24. Patil, Baburao Ramchandra. Studies on the Development of Agrotechniques for late sown Wheat. I.A.R.I., Delhi.
25. Patnaik, Mohan Charan. Nature of Gene action and effect of selection for developmental traits on productivity in Brassica Campestris (Var. Brown sarson) I.A.R.I., Delhi.
26. Ram B[illegible] Lal. Effection Different Cropping Intensities and Irrigation Methods on the Economics of Crop Production. I.A.R.I., Delhi.
27. Patil, Laxman Kala. Studies into alternaria Blight of Wheat and Patato and some Phytopathogenic Fungi from Maharashtra. Mahatma Phule Krishi Vidyapeeth.
28. Rai, Mangala. Induction of Mutations and Diallel Analysis in Linum. Banaras Hindu University.
29. Rama Sastry, Dhara Venkata. Studies on the Sugary Disease of Sorghum caused by Sphacelia Sorghi McRae. I.A.R.I., Delhi.
30. Raturi, Govind Ballabh. Investigations on the causes of Seasonal variation in Zinc and other Micronutrients and Nematodes in Citrus and their Control Measures. I.A.R.I., Delhi.
31. Sahrawat, Kanwar Lal. Investigations relating to the Development of Nitrification inhibitors from Indigenous Resources. I.A.R.I., Delhi.
32. Saini, Sohan Singh. Nutritional Studies on Grapes (Vitis Vinifera L.) cv. Beauty Seedless in its Prebearing Phase. I.A.R.I., Delhi.
33. Samra, Jagir Singh. Studies on Soil Physical Parameters on Intergrated soil test crop response correlations. I.A.R.I., Delhi.
34. Samra, Jasbir Singh. Agronomic Studies on Mentha Arvensis L. Punjab Agricultural University.
35. Satija, Des Raj. Genetic Analysis of Adaptation and Response to selection in Pearl Millet (Pennisetum Typhoides Stapf and Hubb). I.A.R.I., Delhi.
36. Sekhara Rao, [illegible] Chandra. Soil Fertility and Physico-Chemical Studies of Soils and Plants under Drought conditions. I.A.R.I., Delhi.
37. Shetty, S.V. Raghuram. Investigations on Chemical Weed Control in Transplanted and Direct Sown Rice (Oryza Sativa L.). Punjab Agricultural University.
38. Shivaji Singh. Cytology of some Marine Siphonaceous Green Algae. Banaras Hindu University.
39. Singhania, Ram Autar. Studies on the Transformation of Applied Phosphorus in Soils and its Utilization by Rice and Wheat Grown in Sequence. I.A.R.I., Delhi.
40. [illegible], Narayan Pandharinath. Optional versus authority Innovation decisions in Strategies for increasing production on small holdings: Implications for Development. I.A.R.I., Delhi.
41. [illegible], Anand Swaroop. Genetic Analysis of Yield in [illegible] (Phaseolus Aureus Roxb). I.A.R.I., Delhi.
42. Yadav, Inder [illegible] Singh. Study of Grape Hybrids. I.A.R.I., Delhi.

SOCIAL SCIENCES

Psychology

Basu, Gopa. A Study of Job Motivations of a sample of Indian Executives. Banaras Hindu University.

Sociology

1. Mann, Ram Singh. An Analytical Study of Social Structure and Social Change in a Delhi village. University of Delhi.
2. Saikia, [illegible] Chandra. Socio-Ritual Structure of a Dibongiya village. University of Gauhati.
3. Solanki, Asha Siddhraj. Rabaries of Gir, Barda and Alecha. A study of Kinship. Gujarat University.

Political Science

Kohli, Manorama. India and Bhutan : A study in Inter-Relations 1772-1910. Punjabi University.

Public Administration

Datta Ray, Basudeb. Assam Secretariat : 1874-1947. University of Gauhati.

Education

1. Deshpande, Vasant Seetaram. Teaching Reading to Beginners: A Methodological Study. University of Poona.
2. Sharma, Govind Narain. An Investigation into Supervisory Techniques in Science (Physics) Teaching in Higher Secondary Schools in the Union Territory of Delhi. University of Delhi.
3. Patel, Lilavati Keshavlal. Construction and Standardization of Performance Tests of Intelligence for Students of St. II to XI in Gujarat. Gujarat University.

HUMANITIES

Philosophy

Param Hans Singh. Institutionism in Recent Ethical Thought. Banaras Hindu University.

Linguistics

1. Dube, Jagat N. Mahabharat ka Arth-Vaigyanik Adhyayan. Ravishankar University.
2. Sharma, P.P. Chhattisgarh ke Krishak jeevan Kee Shabdavali. Ravishankar University.
3. Verma, N.D. Chhattisgarhi Svanon aur Rupon ka Udvikas. Ravishankar University.
4. Yadu, M.L. Chhattisgarhi Lokoktiyaon ka Bhasha-vaigyanik Adhyayan. Ravishankar University.

Literature

English

1. Haider, Aziz. T.S. Eliot and Modern Criticism. Banaras Hindu University.
2. Surya Deo Ram. Keats's Concept and Treatment of Beauty. Magadh University.

Sanskrit

1. Bali Ram Singh. Milinda Prashna : Ek Vishleshnatmak Adhyayan. Magadh University.
2. Sharma, L.K. Indra-Vedic Tatha Vedicottar Sahitya ke Pariprekshya Mein. Ravishankar University.

Hindi

1. Bakhshi Yogendra. A Comparative Study of Hindi and Punjabi Novels (1920-60) with special reference to Historical Development, Content and Technique. Punjabi University.
2. Bhartiya, Saraswati. Hindi mein Rekha Chitra aur Sansmaran 1960 tak. University of Delhi.
3. Dwyer, William. Kabir kee Bhakti-Bhavana. University of Delhi.

(*Continued on page 27*)

Classified Advertisements

SAURASHTRA UNIVERSITY
RAJKOT

APPLICATIONS in the prescribed forms are invited for the posts of READERS in : (1) MATHEMATICS (2) COMMERCE. Pay Scale Rs. 700-50-1250 (3) LECTURER in POLITICAL SCIENCE. Pay scale Rs. 300-25-600.

All posts are permanent and carry benefits of contributory Provident Fund as per University Rules. Posts at Sr. No. 1 & 2 are for University Department and P.G. Centre conducted by the University and post No. 3 is for University colleges at Bhavnagar. Dearness Allowance & House Rent Allowance will be paid as per University rules. Higher initial salary in the scale may be considered in case of exceptionally qualified and experienced persons. Qualifications and experience relaxable in special cases. Candidates in employment must submit their applications through their present employer. Candidates if not knowing Gujarati will be required to pick-up Gujarati within a reasonable period. Those who applied earlier should send their applications again. Age ordinarily not exceeding 55 years.

Application forms and details of qualifications required will be available from the Registrar, Saurashtra University, University Campus, Kalawad Road, Rajkot on sending a self-addressed envelope of the size 23 x 11 cms. with postage stamps worth 60 paise.

Application (six copies in case of posts No. 1 & 2 and four copies for post No. 3) accompanied by Indian Postal Order (for Rs. 5/- in case of posts No. 1 & 2 and Rs. 2·50 for post No. 3) crossed in favour of Registrar, Saurashtra University, Rajkot should reach this office on or before 31-12-1973.

(V. M. DESAI)
REGISTRAR

UNIVERSITY OF INDORE
INDORE

University House,
Indore-1.

No. Estt. III(7)/73 Dated : 12th Nov. '73

ADVERTISEMENT

APPLICATIONS, accompanied with a crossed Indian Postal Order for Rs. 5/- in favour of "Registrar, University of Indore, Indore" are invited by Monday the 24th December 1973 for the post of Registrar in the scale of Rs 1100-50-1300-60-1600 (the cover containing the application should be marked ("APPLICATION FOR THE POST OF REGISTRAR"). A higher starting salary may be given to an exceptionally qualified and experienced person. Benefits of other allowances and Provident Fund according to University Rules will be available.

(2) A candidate should not be over 55 years on 24-12-1973 and must possess at least a Second Class Master's degree in Arts, Commerce or Science or equivalent qualification with at least 10 years' experience of teaching degree classes and/or Administrative experience. Proficiency in Hindi—to write and to speak—is essential.

(3) Other things being equal, preference will be given to Scheduled Caste/Scheduled Tribe candidates.

(4) Persons already in service should apply through proper channel. They may send an advance copy of their application within the due date and should bring a "No objection Certificate" from their employer when called for an interview.

(5) The candidates called for interview will be required to come at their own cost and produce their original degrees, certificates etc., at that time.

M. L. TIWARI
REGISTRAR

UNIVERSITY OF JAMMU
NOTICE

APPLICATION on prescribed forms are invited for the following posts to reach the undersigned on or before December 15, 1973.

1. Readers (Rs 700-1250), one each in Geology and Sanskrit.
2. Lecturers in Law (Rs. 400-950).

For full details and prescribed forms, please apply by sending a crossed postal order for Re. 1/- in favour of the Registrar, University of Jammu cashable at Jammu post office.

(K.K. Gupta)
REGISTRAR

ALIGARH MUSLIM UNIVERSITY
ALIGARH

(Advertisement No. 12/73-74)

APPLICATIONS are invited on the prescribed form for the following posts:

1. Professor of Urdu. Scale Rs. 1100-50-1300-60-1600 plus allowances.

Qualifications ordinarily required : A first or high second class Master's degree in Urdu of an Indian University or an equivalent foreign qualification. A research degree of a doctorate standard or published work of a high standard and atleast ten years' experience of teaching Post-Graduate classes and guiding Research.

2. Professor of Philosophy. Scale Rs. 1100-50-1300-60-1600 plus allowances.

Qualifications ordinarily required : A first or high second class Master's degree in Philosophy of an Indian University or an equivalent foreign qualification. A research degree of a Doctorate standard or published work of a high standard and atleast ten years' experience of teaching Post-Graduate Classes and guiding research.

3. Reader in Statistics, Department of Mathematics & Statistics. Scale Rs. 700-50-1250 plus allowances.

Qualifications ordinarily required : A first or high second class Master's degree in Statistics or equivalent foreign qualification. Research Degree of doctorate standard or published work of high standard. Atleast five years' experience of teaching Post-Graduate classes and some experience of guiding research.

4. Lecturer in Statistics, Department of Mathematics & Statistics. Scale Rs. 400-950 plus allowances as admissible under the rules.

Qualifications ordinarily required :—
Atleast a First or High Second Class Master's Degree in Statistics or equivalent foreign qualifications.

Desirable : Adequate research and teaching experience.

5. Lecturers in History, Department of History, Scale Rs. 400-40-800-50-950 plus allowances.

Qualifications ordinarily required :—
First or high second class M.A. in History of Indian University or equivalent foreign qualifications. Some teaching experience of University Classes and/or Research Work.

Desirable : Capacity to use original source material of Medieval India.

6. Lecturer in History, Women's College. Scale Rs. 400-950 plus allowances.

Qualifications ordinarily required : A first or high second class Master's Degree in History of an Indian University or an equivalent foreign qualification.

Desirable : Atleast two years teaching and/or research experience in a College/University. Some published work.

7. Lecturer in Russian History (Department of History) in the scale of Rs. 400-40-800-50-950 plus allowances.

Qualifications :—Atleast a first or high second class Master's Degree in Russian History or an equivalent foreign qualification.

8. Lecturer in Chemistry, Z.H. Engineering College. Scale Rs. 400-40-800-50-950 plus allowances as admissible under the rules. (Temporary for about 2½ years).

Qualifications : A first or a high second class Master's degree in Chemistry or an equivalent qualification.

Desirable : Some teaching experience.

Prescribed application forms and instructions may be had from the Deputy Registrar (Executive) by sending self-addressed envelope of 9" x 4". Last date for receipt of applications is 12th December, 1973. Incomplete applications and those received late may not be considered.

Higher start may be given for special qualifications and experience. Candidates interviewed may be paid contribution towards their T.A. equal to one single second-class Railway Fare only.

(P. V. George),
REGISTRAR.

ANDHRA UNIVERSITY

APPLICATIONS in the prescribed form are invited for the following posts so as to reach the Registrar on or before 17-12-1973. Each Application shall be accompanied by a crossed Indian Postal Order for Rs. 10/- or a Bank receipt remitting the amount in the State Bank of India.

(a) TEACHING POSTS

Subject	Number of posts		
	Professor	Reader	Lecturer
1. Commerce	1	—	—
2. Philosophy	1*	—	—
3. English	1	—	—
4. (a) Theatre Arts	—	—	1 (Scenic Designer & Lecturer in Stage Craft)
(b) Theatre Arts Stage Director	—	—	1
5. Politics	—	1	1
6. Public Administration	—	2	2
7. Hindi	—	—	3
8. Law	—	1	—
9. Physics	—	—	2+1*
10. Chemistry	—	2	2
11. Geophysics	—	—	1*
12. Chemical Engineering	—	—	3+3*
13. Education	—	—	1
14. Meteorology and Oceanography	—	—	1

*Temporary

(b) Research Fellowships

	Senior	*Junior*
1. Botany	2	3
2. Geology	1	—

(c) Non-Teaching posts

Name of the post	No. of posts	Scale of pay
1. Junior Library Assistants.	3	Rs. 200-10-300.
2. Plant Breeding Assistant (Dept. of Botany).	1	Rs. 250-15-400-20-500
3. Laboratory Technician (Dept. of Botany)	1	Rs. 160-10-260-12-320
4. Field Assistants (Dept. of Botany)	2	Rs. 70-3-100

Scale of pay :

Professor : Rs. 1,100-50-1,300-60-1,600
Reader : Rs. 700-50-1,250
Lecturer : Rs. 400-40-800-50-950
Fellowships :
Senior : Rs. 500/ fixed
Junior : Rs. 300/ fixed.

Requisitions for the application forms and other details of qualifications etc., prescribed for the post may be made to Sri P. Hanumantha Rao, Deputy Registrar, Andhra University, Waltair, accompanied by a self-addressed and stamped envelope and a State Bank Challan or a crossed Indian Postal Order for one Rupee. The University reserves the right to fill or not to fill the posts. The cover containing the applications should be superscribed as "Application for appointment to the post of....."

(M. Gopalakrishna Reddy)
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

P.O I.I.T., POWAI, BOMBAY-76

ADVERTISEMENT NO. 765

APPLICATIONS are invited in the prescribed form obtainable from the Registrar, I.I.T., P.O., I.I.T., Bombay-400076 on request accompanied by a self-addressed envelope (23 cm. x 10 cm.) for the following post in the Russian Translation Unit of the Institute. Candidates from abroad may apply on plain paper. *Candidates employeid n Government or* Semi-Government Organization or Educational Institution must apply through proper channel. Last date for the receipt of applications is 25th December 1973.

Post : TRANSLATION OFFICER.

Scale of Pay : Rs. 400-40-800-50-950.

Allowances : D.A., H.R.A., C.A. etc. admissible as per rules of the Institute.

Qualifications : Bachelor's degree in Engineering or Master's Degree in Science followed by a Postgraduate Diploma in Russian Language of a recognised University with at least 5 years experience *in Russian Translation*.

Qualifications relaxable in the case of very competent person with considerable experience in the translation of technical Russian works into English with experience in organising such a Translation Unit.

CENTRAL INSTITUTE OF ENGLISH & FOREIGN LANGUAGES
HYDERABAD - 500007

ADVERTISEMENT NO. VI/73

APPLICATIONS on the prescribed forms together with necessary Application fee, are invited for the following posts, in the Institute Service, so as to reach the undersigned on or before 24-12-1973.

Professors : Rs. 1100-50-1300-60-1600

(1) Professor in the Correspondence Course Unit
(2) *Professor at the Regional Centre,* Shillong

Qualifications : Essential :

(*i*) At least a Second Class Master's Degree in English.
(*ii*) A research degree of doctorate standard or published work of equivalent standard.
(*iii*) At least five years' experience of Post-Graduate teaching/producing materials in a recognized institution.

Desirable :

For post No. 1 : Specialised training in the teaching of English and experience of teaching through Mass Media or Correspondence Courses.

For post No. 2 : Specialised training in the teaching of English and experience of organising English Language Teaching programmes.

Readers : Rs. 700-50-1250

(1) Reader in the Department of English Literature.
(2) Reader in the Correspondence Course Unit.
(3) Reader at the Regional Centre, Shillong.
(4) Reader in the Department of Extension Services (UGC Cell).
(5) Reader in Curriculum Construction.
(6) Reader in Methods.
(7) Reader in German.

Qualifications : Essential :

For post No. 1, 2, 3 and 4 :

(*i*) At least a Second Class Master's Degree in English.
(*ii*) Research degree or evidence of research.
(*iii*) Specialised training in the teaching of English.
(*iv*) Five years experience of teaching at the college level or in a teacher training institution.

For post Nos. 5 and 6 :

(*i*) At least a Second Class Master's degree in English, Education or Psychology with high level competence in English.
(*ii*) Research degree or evidence of research in one of the above fields.
(*iii*) Special interest in Psycholinguistics or Sociolinguistics/Curriculum Construction/Educational Technology/Programmed instruction/Computer programming.
(*iv*) At least five years' experience of teaching at the college level or a teacher training institution.

For post No. 7 :

(*i*) At least II class Master's degree in German or an equivalent qualification.
(*ii*) Research degree or evidence of research.
(*iii*) At least five years experience of teaching German in a recognized institution.

Desirable :

For post No. 1 : Special interest in *Modern English Literature including* Indian English Writing/Stylistics and Literary interpretation.

For post No. 2 : Experience of teaching English through Mass Media or Correspondence Course.

For post No. 3 : *Experience of organising* English Language teaching programmes and producing materials.

For post No. 4 : Experience of organising extension programmes and short-term courses in the field of English

[illegible]

(ii) Experience of preparing and [illegible]

[illegible] Experience of [illegible] in [illegible] of [illegible] and [illegible]

AUTHOR : Rs. 700-50-1250

Qualifications : Essential :

(i) At least a II class Master's Degree in English.

(ii) Specialised training in the teaching of English.

(iii) At least five years' experience of teaching English at the school or college level.

(iv) Experience in the preparation of teaching materials in English, preferably 'programmed' materials.

(v) High-level proficiency in Hindi or Tamil.

Desirable :

Evidence of research in the field of English Language teaching.

PROGRAMMER : Rs. 700-50-1250

Qualifications : Essential :

(i) At least a II class Master's Degree in English Education or Psychology with high level competence in English.

(ii) A degree in 'Programmed Learning' or practical experience in the preparation of Programmed Materials for language teaching.

(iii) At least five years' experience of teaching at the school or college level.

(iv) High-level proficiency in Hindi or Tamil.

Desirable :

Evidence of research in the field of English Language Teaching.

LECTURERS : Rs. 400-40-800-50-950

(1) Lecturer in the Correspondence Course Unit.

(2) Lecturer in the Bureau of Tests & Examinations.

(3) Lecturer in the Department of Extension Services (U.G.C. Cell).

(4) Lecturer in the Department of Linguistics & Contemporary English.

(5) Lecturer in German.

Qualifications : Essential :

For posts No. 1, 2 and 3 :

(i) At least a II class Master's Degree in English.

(ii) Specialised training in the teaching of English OR at least two years' experience of teaching English/preparing materials in a recognised institution.

For post No. [illegible]

(i) At least a II class Master's degree in [illegible]

(ii) [illegible]

[illegible]

[illegible]

Desirable :

For all posts : Evidence of Research.

For post No. 1 : Experience of teaching English through Mass Media or Correspondence Course.

For post No. 2 : Special training in test techniques and relevant statistical procedures.

For post No. 4 : Special interest in the field of Grammar.

For post No. 5 : Experience of producing materials for teaching German.

NOTE :

1. Allowances at Central Government rates.
2. A higher start in the grade may be considered for specially qualified candidates. Qualifications are relaxable in case of candidates with exceptional qualifications.
3. Those who had applied for the posts of Professor in Correspondence Course, Reader in Correspondence Course and Reader in Extension Services in response to our earlier advertisement No. IV of 1973, need not apply again for these posts.

AGE :

For Professors : Not below 35 years.
For Readers : Not below 30 years.
For Author & Programmer : Not below 30 years.

GENERAL NOTE :

1. Separate applications should be made for each post.

2. Post Nos. 1 and 6 of Readers are permanent and the rest are temporary for the duration of the Plan but likely to continue.

3. Age of retirement : 60 years.

4. Applications received after the last date fixed for the receipt of applications may not be entertained. Postal delay will not be condoned.

5. The Institute reserves the right to reject any application without assigning reasons.

6. Where a II class Master's degree is prescribed as a qualification the candidate should have secured at least 50% marks in the aggregate at the Master's degree level. True copies of the statements of marks must be enclosed.

7. Candidates must enclose in duplicate a list of papers published, if any, indicating the journals and dates.

8. In case the Selection Committee finds that the candidates interviewed by them are not up to the mark, the Committee may consider them for a lower cadre post or a lower scale of pay.

9. The selected candidates should be prepared to work in Hyderabad or in any of the centres of the Institute in India.

10. [illegible]

[illegible]

11. [illegible]

12. An incomplete application or an application which is not in accordance with the conditions of the advertisement is liable to be rejected.

13. A candidate called for interview from a place outside Hyderabad will be paid a contribution towards his/her travelling expenses at the rate of single second class railway fare, and where there is no second class, third class railway fare including sleeper coach charges from the place of his/her work or the place of his/her residence, whichever is less, by the shortest route.

14. Application forms can be had from the Registrar, Central Institute of English and Foreign Languages, Hyderabad-500007 (A.P.) India on payment of Rs. 2/- in person or by Money Order or crossed Postal Order payable to the Director, Central Institute of English and Foreign Languages and by sending a self-addressed envelope (10 cm — 23 cm) stamped for ordinary (0.50 paise) or Registered post (Rs. 1.50).

L.B. Deshpande
REGISTRAR

MARATHWADA UNIVERSITY
AURANGABAD

NO. ESTT/DEPT/ADVT/19.

APPLICATIONS are invited for the two posts of Lecturers in Zoology in the University Department of Zoology in the pay scale of Rs. 400-40-800-50-950 so as to reach the undersigned on or before *December 31, 1973.*

Minimum Qualifications and Experience

At least a Second class Master's Degree in the subject and/or a research degree of a doctorate standard and/or research publication of acknowledged merit.

Ordinarily five years' teaching experience in degree and/or Post-graduate classes.

Detailed information regarding the prescribed qualifications in the subject with specialisation etc. will be supplied along with the prescribed application forms on receipt of a self-addressed envelope (23 × 10 cms) bearing Postal stamps worth 30 paise for the purpose. Applications in the prescribed forms should reach the Registrar, Marathwada University, Aurangabad not later than [illegible] along with the fee of [illegible]

[illegible]

(*Continued from page 23*)

4. **Gupta, Sharad K.** SHRI PADUMLAL PUNNALA BAXI KA VYAKTITV AUR KRITITV. Ravishankar University.
5. **Khare, Shreedevi.** PRASAD, NIRALA, PANT AUR MAHADEVI KE KAVYON KA TULNATMAK ANUSHEELAN. Ravishankar University.
6. **Shanta, Kocher.** HINDI SAHITYA MEIN MANGAL KAVYA. University of Delhi.
7. **Priyamavada Singh.** PUSHTI-MARGIYA PARAMPARA AUR KAVIVAR NAND DAS. Banaras Hindu University.
8. **Shukla, Shakuntala.** NIRALA KEE KAVYA BHASHA. Banaras Hindu University.

Gujarati

Vyas, Harinarayan Ambalal. MAHATMA GANDHI'S INFLUENCE ON GUJARATI LITERATURE. Gujarat University.

History

Yadava, Jhinkoo. A CULTURAL STUDY OF THE SAMARAICHCHAKAHA. Banaras Hindu University.

current documentation in education

A list of select articles culled from periodicals received in the IUB Library during January-November 1973.

EDUCATIONAL PLANNING & ADMINISTRATION

AMRIK SINGH. **"Wrong response".** *University News* 11(2); Feb. 73 : 1.

ANDREW, LOYD D. AND ROBERTSON LEON. **"PPBS in higher education : A case study".** *Educational Record* 54 (1); Winter 73 : 60-7.

BURGESS, TYRELL. **'Technique no substitute for planning".** *Times Higher Education Supplement* (92); 20 July 73 : 7.

CORSON, JOHN J. **"Institutional governance within a system"** *Educational Record* 54(2); Spring 73 : 107-14.

DELEON, ASHER. **"Informal education".** *Indian Journal of Adult Education* 34(9); Sept. 73 : 10-15.

ENARSON, HAROLD L. **"Tinkering with university government".** *Educational Record* 54(1); Winter 73 : 47-50.

"Fourteen universities aim to coordinate graduate studies". *A.C.U. Bulletin of Current Documentation* (9) ; June 73 : 18-19.

"Framework of expansion". *Universities Quarterly* 27(2); Spring 73 : 131-55.

GREENWOOD, NOEL. **"Carnegie commission : Education barriers should be breached".** *Times Higher Education Supplement* (100); 14 Sept 73 : 10.

HAZARAY, M.R. **"Towards new education".** *Yojana* 16(24-25); *1 Jan 73 :* 985.

"Idea of an autonomous college : A discussion". *New Frontiers in Education* 3(1); Apr 73 : 36-51.

JASSAL, R.S. **"Job-oriented education" : Need for integrated planning".** *Round Table* 2(40); 4 Nov 73 : 5-7.

KAPOOR, S. **"M.S. University of Baroda : Department of Continuing Education".** *University News* 11(11); Nov 73: 11-15.

KERR, CLARK. **"Administration in an era of change and conflict".** *Educational Record* 54(1); Winter 73 : 38-46.

LAEKDAWAL, D.T. AND PANCHAMUKHI, P.R. **"Strategy for education during the Fifth Plan : An evaluation".** *Yojana* 17(14); 15 Aug 73: 555-9.

MALHOTRA, P.L. **"Job-oriented education : Employment motivation".** *Round Table* 2(40); 4 Nov 73: 2-5.

MANN, WILLIAM, R. ***"Is the tenure controversy a red herring"?*** *Journal of Higher Education* 44(2); Feb 73: 85-94.

MCGARRAH, ROBERT E. **"University updated".** *Journal of Higher Education* 44(2); Feb 73: 137-47.

MENACKER, JULIUS. **"Counterproductive high school requirements for college admission".** *Educational Record* 54(1); Winter 73: 68-73.

MOHINDER SINGH. **"Patterns of college governance".** *University News* 11(6); June 73 : 9-10.

MOORE, WILLIAM. **"Community college board of trustees : A question of competence".** *Journal of Higher Education* 44(3); Mar 73 : 171-90.

MUKERJI, K. **"Development planning : A case study of North Bengal University".** *University News* 11(2); Feb 73 : 12-13.

NADVI, ABUL HASAN ALI. **"Storm over Aligarh : Creed, conscience and education".** *Quest* (82); May/June 73 : 35-7.

PADMANABHAN, C.B. **"Planning, programming and budgeting system for higher education".** *University News* 11(9); Sept. 73 : 4-5.

PANDE, S.C. **"Job-oriented education : Training and acceptability".** *Round Table* 2(40); 4 Nov 73 : 8-9.

PAVATE, D.C. **"University management".** *University News* 11(10); Oct 73 : 4, 9.

PIERSON, GEORGE A. ***"Competing for power in today's university".*** *Chronicle of Higher Education* 7(17); 29 Jan 73 : 12

RAJAGOPALA RAO, N. **"Mysore universities bill 1973".** *University News* 11(9); Sept 73 : 9-11.

"Recommendations of the committee of the CABE on informal education". *Indian Journal of Adult Education* 34(9); Sept 73; 16-17.

RICHARDSON, RICHARD C. **"Governing the multiunit community college system".** *Educational Record* 54(2); Spring 73 : 141-6.

SAMEEKSHAK, PSEUD. **"Police and educational institutions".** *New Frontiers in Education* 3(1); *Apr 73: 97-100.*

SAYEED BASHEER AHMED. **"Storm over Aligarh : A pernicious doctrine".** *Quest* (82); *May/June 73 : 37-44.*

SHAH, A.B. **"Aligarh Storm over a non-issue".** *Quest* (82); May/June 73 ; 45-58.

SHEEHAN, B.S. **"Institutional research as adjunct to university management".** *University News* 11(5); *May 73: 5-8, 14.*

SOLES, JAMES R. **"Information : Missing ingredient in university governance".** *Educational Record* 54(1); Winter 73 : 51-5.

"South Africa : Vice-Chancellor emphasizes need for autonomy". *Times Higher Education Supplement* (67); 26 Jan 73 : 11.

"Ten year plan for British education". *A.C.U. Bulletin of Current Documentation* (7); Feb 73: 1-5.

"Towards 1980 : Social justice and liberal dream". *Times Higher Education Supplement* (83); 18 May 73 : 12.

"Training administrators in Southeast Asia and India". *A.C.U. Bulletin of Current Documentation* (8); Apr 73 : 10-11.

"(U.K.) University Grants Committee announces details of quinquennial allocations". *Times Higher Education Supplement* (66); 19 Jan: 2-3.

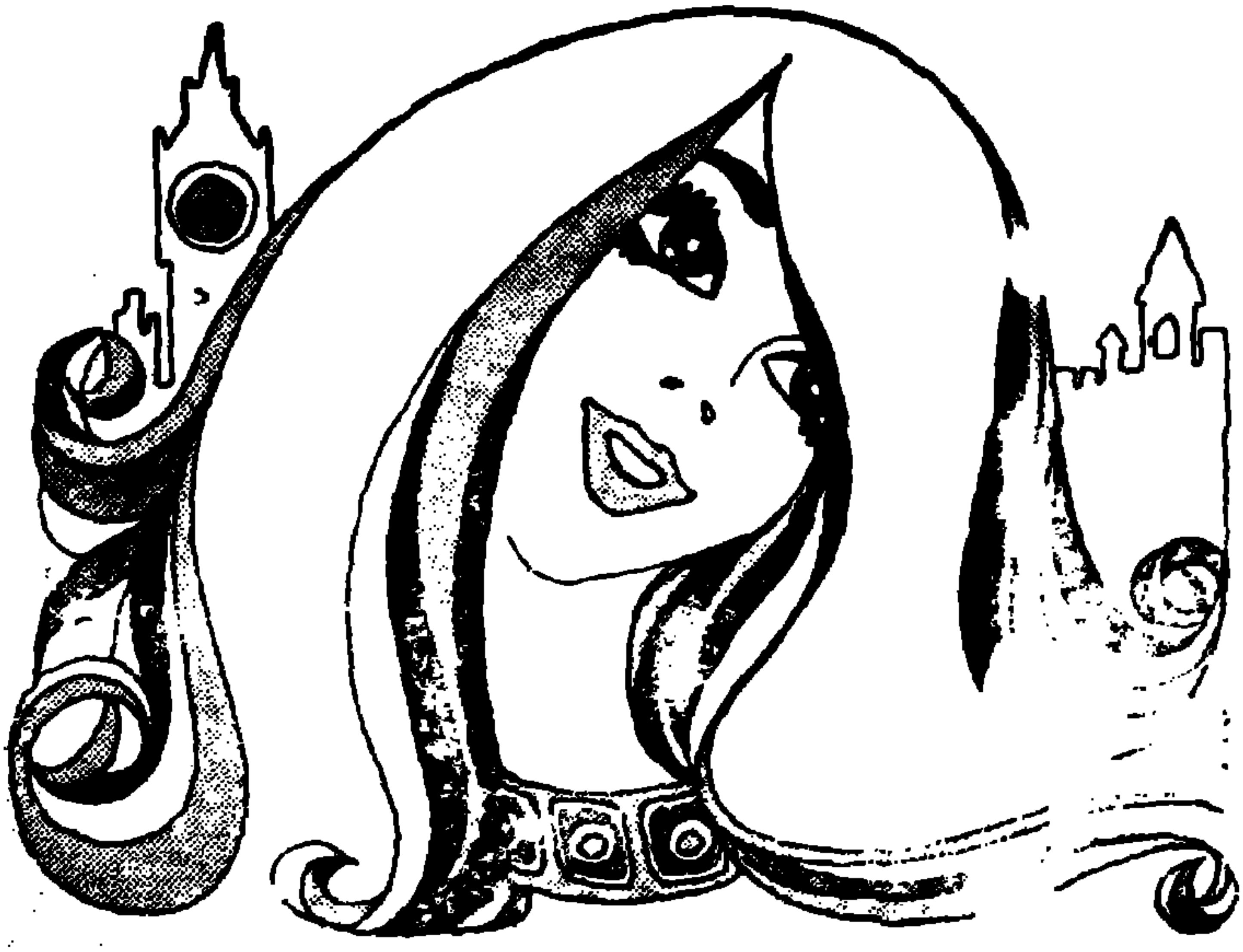
WAGONER, RALPH H. **"In the absence of a president".** *Educational Record* 54(1); Winter 73 : 56-9.

The swans are beautiful in London

So we fly there oh so often!

London Town
a capital town where you can
laze in the park, star gaze,
window shop, theatre, ballet,
avant-garde movies.

AIR-INDIA
the airline that offers so much



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